4th CONGRESS
EUROPEAN SOCIETY FOR SWALLOWING DISORDERS

DYSPHAGIA ACROSS AGES

BRUSSELS 2014
BELGIUM
October 23-25

www.essd2014.org
Nutilis is a food for special medical purposes and must be used under medical supervision. Nutilis is designed for use by patients with swallowing difficulties (dysphagia).

Patients with dysphagia may require a texture-modified diet to ensure a safer swallow.

Nutilis Clear is an advanced thickening powder that does not change the taste, transparency or appearance of thickened foods or drinks, and is amylase resistant so thickened foods and drinks retain consistency, helping dysphagia patients with a safer swallow.

Preparing foods and drinks with Nutilis Clear helps dysphagia patients to not only take in adequate nutrition and hydration, but to also relax and enjoy mealtimes again.
Dear Friends and Colleagues,

I am delighted and honoured to welcome you to Bruxelles on behalf of the Local Organizing Committee of the 4th Annual Meeting of the European Society for Swallowing Disorders – ESSD.

We are committed to providing you with the best environment to promote exchange of ideas, scientific discourse, and disseminate updated knowledge related to our domain of expertise: oropharyngeal and esophageal dysphagia.

From 23 to 25 October 2014, this meeting themed “Dysphagia across Ages” will take you on a journey that we believe will be a unique experience. Each day of the programme will be devoted to a swallowing phase, oral, pharyngeal and oesophageal, and during each day, will examine different age-groups.

Our task is to meet and exceed your expectations. The meeting will keep you informed through a variety of sessions including expert key note lectures, oral and poster presentations, case-based instructional courses and also provide you with a platform to present your research to the world. You will also be informed about the lives of our society, ESSD, (objectives, realization, and future perspectives).

We are excited to welcome you here in the heart of Europe, Bruxelles, the European city best known for its hospitality and friendship. We will make you feel at home.

Join us for the largest European event of the year devoted to Dysphagia.

I look forward to meeting you

Yours sincerely,

Professor Georges LAWSON
ORL & Head Neck surgery
Université Catholique de Louvain
CHU Dinant Godinne
Head of Surgical department
Chair of the of the
Local Organizing Committee
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Local Organizing Committee

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Dr Gauthier DESUTER, ENT
Dr Jan VANDERWEGEN, ENT
Dr Gwen VAN NUFELEN, SLP

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## Programme Overview

### THURSDAY, Oct 23

**Oral Phase**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>07:00-08:00</td>
<td><strong>REGISTRATION</strong></td>
</tr>
<tr>
<td>08:00-08:30</td>
<td>1 Welcome / 1. From EGDG to ESSD</td>
</tr>
<tr>
<td>08:30-09:00</td>
<td>2 Swallowing problems of neonates</td>
</tr>
<tr>
<td>09:00-09:30</td>
<td>3 Free papers “Dysphagia in Children”</td>
</tr>
<tr>
<td>09:30-10:00</td>
<td><strong>Coffee Break</strong></td>
</tr>
<tr>
<td>10:00-10:30</td>
<td>4 What does a NICU expect from a swallowing therapist?</td>
</tr>
<tr>
<td>10:30-11:00</td>
<td>5 Free papers “Screening and Assessment”</td>
</tr>
<tr>
<td>11:00-11:30</td>
<td>6 Posters PPA, PTA</td>
</tr>
<tr>
<td>12:00-12:30</td>
<td><strong>LUNCH</strong></td>
</tr>
<tr>
<td>12:30-13:00</td>
<td>Nutricia Symposium</td>
</tr>
<tr>
<td>13:00-13:30</td>
<td><strong>LUNCH</strong></td>
</tr>
<tr>
<td>13:30-14:00</td>
<td>7 The tongue hydrostat</td>
</tr>
<tr>
<td>14:00-14:20</td>
<td>8 Mastication and Swallowing Test</td>
</tr>
<tr>
<td>14:20-14:40</td>
<td>9 Tongue force: state of the art</td>
</tr>
<tr>
<td>14:40-15:00</td>
<td><strong>Coffee Break</strong></td>
</tr>
<tr>
<td>15:00-15:30</td>
<td>10 Free papers “Physiology”</td>
</tr>
<tr>
<td>15:30-16:00</td>
<td><strong>Instructional Courses, Oral phase</strong> <em>See details on next page</em></td>
</tr>
<tr>
<td>16:00-16:30</td>
<td>ESSD General Assembly</td>
</tr>
<tr>
<td>16:40-17:40</td>
<td><strong>LUNCH</strong></td>
</tr>
<tr>
<td>17:45-18:45</td>
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</tbody>
</table>

### FRIDAY, Oct 24

**Pharyngeal Phase**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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</thead>
<tbody>
<tr>
<td>08:00-08:30</td>
<td>11 Airways protection in infants</td>
</tr>
<tr>
<td>08:30-09:00</td>
<td>12 Pediatric impedance manometry</td>
</tr>
<tr>
<td>09:00-09:30</td>
<td>13 Pediatric swallowing rehabilitation</td>
</tr>
<tr>
<td>09:30-10:00</td>
<td><strong>Coffee Break</strong></td>
</tr>
<tr>
<td>10:00-10:30</td>
<td>14 Free papers “Presbyphagia/Complications/Other”</td>
</tr>
<tr>
<td>10:30-11:00</td>
<td>15 ESSD &amp; education: online &amp; university</td>
</tr>
<tr>
<td>11:00-11:30</td>
<td>16 Presbyphagia</td>
</tr>
<tr>
<td>12:00-12:30</td>
<td>17 Posters PPB, PTB</td>
</tr>
<tr>
<td>12:30-13:00</td>
<td><strong>LUNCH</strong></td>
</tr>
<tr>
<td>13:00-13:30</td>
<td>Fresenius Kabi Symposium</td>
</tr>
<tr>
<td>13:30-14:00</td>
<td><strong>LUNCH</strong></td>
</tr>
<tr>
<td>14:00-14:20</td>
<td>18 Dysphagia as a geriatric syndrome</td>
</tr>
<tr>
<td>14:20-14:40</td>
<td>19 Parkinson’s disease and swallowing Tongue</td>
</tr>
<tr>
<td>14:40-15:00</td>
<td>20 Ethics in end-of-life swallowing issues</td>
</tr>
<tr>
<td>15:00-15:30</td>
<td><strong>Coffee Break</strong></td>
</tr>
<tr>
<td>15:30-16:00</td>
<td>21 Free Papers “Dysphagia in neurological diseases”</td>
</tr>
<tr>
<td>16:00-16:30</td>
<td>*<em>Instructional Courses, Pharyngeal phase</em> <em>See details on next page</em></td>
</tr>
<tr>
<td>16:40-17:40</td>
<td>ESSD General Assembly</td>
</tr>
<tr>
<td>17:45-18:45</td>
<td><strong>LUNCH</strong></td>
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</tbody>
</table>

### SATURDAY, Oct 25

**Oesophageal Phase**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:00-08:20</td>
<td>22 Inflammatory disease and swallowing</td>
</tr>
<tr>
<td>08:20-08:40</td>
<td>23 High resolution manometry in adults</td>
</tr>
<tr>
<td>08:40-09:00</td>
<td>24 New measures of UES distensibility</td>
</tr>
<tr>
<td>09:00-09:30</td>
<td>25 Laryngopharyngeal reflux</td>
</tr>
<tr>
<td>09:30-10:00</td>
<td><strong>Coffee Break</strong></td>
</tr>
<tr>
<td>10:00-10:30</td>
<td>26 Free papers “Instrumental diagnosis / HNC”</td>
</tr>
<tr>
<td>10:30-11:00</td>
<td><strong>LUNCH</strong></td>
</tr>
<tr>
<td>11:00-11:30</td>
<td>ESSD activities- Eur. research projects</td>
</tr>
<tr>
<td>12:00-12:30</td>
<td>27 Posters PPC, PTC</td>
</tr>
<tr>
<td>12:30-13:00</td>
<td><strong>LUNCH</strong></td>
</tr>
<tr>
<td>13:00-13:30</td>
<td>AIM pressure-flow analysis Symposium</td>
</tr>
<tr>
<td>13:30-14:00</td>
<td>18 Dysphagia as a geriatric syndrome</td>
</tr>
<tr>
<td>14:00-14:20</td>
<td>19 Parkinson’s disease and swallowing Tongue</td>
</tr>
<tr>
<td>14:20-14:40</td>
<td>20 Ethics in end-of-life swallowing issues</td>
</tr>
<tr>
<td>14:40-15:00</td>
<td><strong>Coffee Break</strong></td>
</tr>
<tr>
<td>15:00-15:30</td>
<td>21 Free Papers “Treatment”</td>
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<tr>
<td>15:30-16:00</td>
<td><strong>Closing Ceremony, award giving (30 min)</strong></td>
</tr>
<tr>
<td>16:00-16:30</td>
<td>*<em>Instructional Courses, Pharyngeal phase</em> <em>See details on next page</em></td>
</tr>
<tr>
<td>16:40-17:40</td>
<td>ESSD General Assembly</td>
</tr>
<tr>
<td>17:00-18:00</td>
<td><strong>LUNCH</strong></td>
</tr>
</tbody>
</table>

*There is a welcome reception in the exhibition hall at 18:00 on Wednesday 22 and registration will be open from 17:00.*
## Programme Overview. Case-based Instructional Courses

### ORAL PHASE

**Thursday, Oct. 23**

<table>
<thead>
<tr>
<th>Time</th>
<th>Course Description</th>
<th>Instructor(s)</th>
<th>Room</th>
</tr>
</thead>
</table>

### PHARYNGEAL PHASE

**Friday, Oct. 24**

<table>
<thead>
<tr>
<th>Time</th>
<th>Course Description</th>
<th>Instructor(s)</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.40-17.40</td>
<td>Rehabilitation: Techniques to ameliorate the pharyngeal phase</td>
<td>J. Vanderwegen, A. Schindler, D. Bleeckx, R. Speyer</td>
<td>Room: Auditorium, Jacques Brel, Studio</td>
</tr>
</tbody>
</table>

### OESOPHAGEAL PHASE

**Saturday, Oct. 25**

<table>
<thead>
<tr>
<th>Time</th>
<th>Course Description</th>
<th>Instructor(s)</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>17.00-18.00</td>
<td>Rehabilitation: A short summary of the oral, pharyngeal and oesophageal phase</td>
<td>G. Desuter, N. Rommel, G. Lawson, P. Belafsky</td>
<td>Room: Jacques Brel, Studio, Auditorium</td>
</tr>
</tbody>
</table>
WEDNESDAY, OCTOBER 22

18:00-19:00  Welcome Reception, opening of Exhibition. Registration for the congress will be open from 17:00 in the foyer.
   Room: Atrium

THURSDAY, OCTOBER 23

07:00-08:00  Registration - Room: Foyer

08:00-08:10  Welcome Address - Room: Auditorium
   G. Lawson, Belgium

08:10- 08:30  Session 01. From EGDG to ESSD - Room: Auditorium
   Chairs: G. Lawson, A. Wuttge-Hannig;
   Invited speakers: M. Remacle, Belgium; I. Herrmann, Italy; P. Clavé, Spain

08:30 - 09:00  Session 02. Swallowing Problems of the Neonate - Room: Auditorium
   Chairs: N. Rommel; L. Van den Engel-Hoek
   Invited speakers: S. Jadcherla, USA

09:00 - 10:00  Session 03. Free papers “Dysphagia in Children” - Room: Auditorium
   Chairs: P. Clavé, R. Speyer, E. Dejaeger.
NORMAL STAGES OF SALIVA CONTROL IN CHILDREN FROM 0 TILL 5 YEARS OLD. A SURVEY STUDY IN 652 TYPICAL DEVELOPING DUTCH CHILDREN
Van Hulst, K. (Netherlands); van den Engel-Hoek, L. (Netherlands); Hendriks, J. (Netherlands); Jongerius, P. (Netherlands); Erasmus, C.E. (Netherlands)

THE DIAGNOSTIC ACCURACY OF CLINICAL FEEDING EVALUATION IN DETECTING ASPIRATION IN CHILDREN. EXPLORING THE EVIDENCE.
Calvo, I. (Ireland); Conway, A. (Ireland); Walshe, M. (Ireland)

REHABILITATING DYSPHAGIA IN CHILDREN: CURRENT EVIDENCE AND DIRECTIONS FOR RESEARCH.
Walshe, M. (Ireland); Harding, C. (United Kingdom)

RELATIONSHIP BETWEEN HOSPITALIZATION AND DEGLUTITION DISORDERS IN INFANTS AT INTENSIVE CARE UNITS
Rodrigues, T. (Brazil); Silveira, F.R. (Brazil); Soria, F.S. (Brazil); Machado, M.J. (Brazil); Furkim, A.M. (Brazil)

EVALUATION OF SWALLOWING FUNCTION IN CHILDREN WITH CEREBRAL PALSY GRADES IV AND V BY THE GROSS MOTOR FUNCTION CLASSIFICATION SYSTEM
Nascimento, W.V. (Brazil); Oliveira, L. (Brazil); Varalelli, L.P. (Brazil); Caldas, C.A.C. (Brazil); Dantas, R.O. (Brazil)

PRETERM INFANTS IN CYPRUS. A LARGE SCALE EPIDEMIOLOGICAL STUDY
Senekki-Florent, Y. (Ireland); Karaoli, C. (Cyprus); Walshe, M. (Ireland)

10:00-10:30 Coffee Break - Room: Atrium and Foyer.

10:30 - 11:00 Session 04. What does a NICU expect from a Swallowing Therapist? - Room: Auditorium
Chairs: N. Rommel; L. Van den Engel-Hoek.
Invited speaker: S. Jadcherla, USA.

11:00 - 12:00 Session 05. Free papers “Screening and Assessment” - Room: Auditorium
SCREENING DYSPHAGIA IN COPD PATIENTS
Ghannouchi, I. (Tunisia); Marie, J.P. (France); Rouatbi, S. (Tunisia); Verin, E. (Tunisia)

VALIDITY AND RELIABILITY OF THE DUTCH VERSION OF THE DYSPHAGIA HANDICAP INDEX (DHI)
Speyer, R. (Australia); Heijnen, B.J. (Netherlands); Cordier, R. (Australia)

COMPARISON OF COUGH REFLEX TEST AGAINST STANDARD SWALLOWING SCREENING TEST.
Battel, Irene (Italy); Ceolin, A. (Italy); Koch, I. (Italy); Meneghello, F. (Italy); Piccione, F. (Italy); Huckabee, M.L. (New Zealand)

SPEECH PATHOLOGY RELIABILITY FOR STROKE DYSPHAGIA SCREENING ITEMS
Daniels, S.K. (United States); Pathak, S. (United States); Stach, C.B. (United States); Mohr, T. (United States); Anderson, J.A. (United States); Morgan, R.O. (United States)

RELIABILITY OF SCREENING AND BEDSIDE PROCEDURES IN THE MANAGEMENT OF ACUTE STROKE PATIENTS IN A COMMUNITY HOSPITAL
Farneti, D.(Italy); Precipe, S.R. (Italy); Montano, L. (Italy); Nicolini, L. (Italy); Genovese, E. (Italy)

‘HOW ABOUT SWALLOWING?’
Heijnen, B.J. (Netherlands); Speyer, R. (Australia); Bulow, M. (Sweden); Kuijpers, L.M.F. (Netherlands)

12:00-12:30  Session 6 Posters PPA, PTA - Room: Foyer
PPA, Chairs: M. Bülow, M. Rijckaert
PTA1-11, Chairs: P. Pokieser, S. Van der Vorst
PTA12-21, Chairs: O. Ekberg, G. Desuter

12:30-14:00  Lunch - Room: Atrium and Foyer

13:00-14:00  Nutricia symposium - Room: Studio Room
"From science to bedside"
1. Clinical impact of feeding dysphagic patients. A. Schindler, Italy
2. From starch to gum, a clinician’s perspective. L. Prevett, UK
3. Prevalence, pathophysiology and risk factors of oropharyngeal dysphagia in stroke patients. P. Clavé, Spain

14:00 - 14:20  Session 07. The tongue hydrostat  -  Room: Auditorium
Chairs: M. Walshe, G. Desuter.
Invited speaker: J. Vanderwegen, Belgium.

14:20 - 14:40  Session 08. The Test of Mastication and Swallowing  -  Room: Auditorium
Chairs: M. Walshe, G. Desuter.
Invited speaker: M. L. Huckabee, New Zealand.

14:40 - 15:00  Session 09. Tongue force: state of the art  -  Room: Auditorium
Chairs: M. Walshe, G. Desuter.
Invited speaker: G. van Nuffelen, Belgium.

15:00-15:30  Coffee Break  -  Room: Atrium and Foyer

15:30 - 16:30  Session 10. Free papers “Physiology”  -  Room: Auditorium

OROPRESS A NEW WIRELESS TOOL FOR MEASURING ORO-LINGUAL PRESSURES: A PILOT STUDY IN HEALTHY ADULTS
McCormack, Joanne (Ireland); Perry, A. (Ireland); Conway, R. (Ireland); Saunders, J. (Ireland); Casey, V. (Ireland)

RESPIRATORY PARAMETERS IN HEALTHY ADULTS: IMPACT OF BOLUS PRESENTATION AND CARBONATION
Flynn, É. (Ireland); Walshe, M. (Ireland)
SPATIOTEMPORAL CHARACTERISTICS OF THE PHARYNGEAL CORTICAL SENSORY EVOKED POTENTIAL IN HEALTHY SUBJECTS AND PATIENTS WITH OROPHARYNGEAL DYSPHAGIA
Rofes, L. (Spain); Vilardell, N. (Spain); Ortega, O. (Spain); Clavé, P. (Spain)

EFFECTS OF BODY-RELATED PARAMETERS ON SINGLE SIP VOLUMES IN HEALTHY ADULTS
Peiffers, S.P. (Germany); Frank, U.F. (Germany)

CEREBRAL LATERALITY FOR SWALLOWING: EVIDENCES FROM THE MODIFIED DUAL TASK PARADIGM
Balasubramanium, R (India)

ORAL VESTIBULE PRESSURE PRODUCTION BY LIPS AND CHEEKS FROM MASTICATION TO SWALLOWING
Nishiura, M. (Japan); Ono, T. (Japan); Yoshinaka, M. (Japan); Fujiwara, S. (Japan); Yoshinaka, M. (Japan); Maeda, Y. (Japan)

16:40-17:40  Case-Based Instructional Courses (IC): Oral Phase

IC1  TONGUE STRENGTH
G. Van Nuffelen
A. Perry
Room: Studio Room

IC2  INTERACTIVE COURSE ON PAEDIATRIC REHABILITATION FOR INFANTS AND CHILDREN WITH DYSPHAGIA
L. Van den Engel-Hoek
S. Jadhcherla
Room: Jacques Brel

IC3  REHABILITATION: Techniques to improve the oral phase
M Degieter
E. Michou
Room: Studio

17:45-18:45  ESSD General Assembly – Room: Auditorium
08:00 - 08:30  Session 11. Airways protection in infants  - Room: Auditorium  
Chairs: D. Farneti, V. Woisard.  
Invited speaker: S. Jadcherla, USA

08:30 - 09:00  Session 12. Paediatric impedance manometry  - Room: Auditorium  
Chairs: E. Verin, V. Woisard.  
Invited speaker: N. Rommel, Belgium.

09:00 - 09:30  Session 13. Paediatric swallowing rehabilitation  - Room: Auditorium  
Invited speaker: L. van den Engel-Hoek, NL.

09:30-10:00  Coffee Break  - Room: Atrium and Foyer

10:00 - 11:00  Session 14. Free papers “Presbyphagia/ Complications/ Other”  - Room: Auditorium  
Chairs: S. Hamdy, D. Smithard, J. Vanderwegen.

**OROPHARYNGEAL DYSPHAGIA OR LARYNGEAL ASPIRATION IN PARKINSON’S DISEASE: DEFINING HIGH-RISK GROUPS IN NEED OF SCREENING**  
Simons, Janine A. (Germany); Eisemann, N. (Germany); Ceballos-Baumann, A.O. (Germany); Katalinic, A. (Germany)

**ELDER PEOPLE AWARENESS OF THEIR SWALLOWING IMPAIRMENT: THE CASE OF NURSING HOME RESIDENTS**  
Nogueira, Dália (Portugal); Nogueira, D.M.S. (Portugal); Lopes, I.L. (Portugal); Ferreira, P.L. (Portugal); Reis, E.A.R. (Portugal)

**EFFECTS OF VISCOSITY ON SWALLOW INITIATION AND BREATHING-SWALLOW PATTERN DURING EATING OF TWO-PHASE FOOD IN FRAIL ELDERLY INDIVIDUALS**  
Matsuo, K. (Japan); Yamada, T. (Japan); Izawa, M. (Japan); Yamada, S. (Japan); Fujii, W. (Japan); Kanamori, D. (Japan); Nakagawa, K. (Japan); Sumi, Y. (Japan); Ogasawara, T. (Japan)
GENETIC DETERMINANTS OF SWALLOWING SYMPTOMS RELATED TO DYSPHAGIA IN OLDER HEALTHY INDIVIDUALS
Raginis-Zborowska, Alicja (United Kingdom); Hamdy, S. (United Kingdom); Ollier, W. (United Kingdom); Pendleton, N. (United Kingdom)

THE PREVALENCE OF DYSPHAGIA IN PATIENTS WITH COMMUNITY-ACQUIRED PNEUMONIA
Melgaard, Dorte (Denmark); Hansen, T. (Denmark); Grønlund, B. (Denmark); Baandrup, U. (Denmark)

RELATIONSHIP BETWEEN TONGUE AND SWALLOWING PRESSURE IN PATIENTS WITH MYOTONIC DYSTROPHY TYPE 1 (DM1).
Umemoto, George (Japan); Furuya, H. (Japan); Tsuboi, Y. (Japan); Sugawara, M. (Japan); Arahata, H. (Japan); Sakai, M. (Japan); Kikuta, T. (Japan)

11:00 - 11:30       Session 15. ESSD activities in education – online and university - Room: Auditorium
Chairs: O. Ekberg.
Invited speaker: P. Clavé and M. Walshe.

11:30 - 12:00       Session 16. Presbyphagia - Room: Auditorium
Chairs: S. Hamdy, J Vanderwegen.
Invited speaker: D. Smithard, UK.

12:00-12:30       Session 17. Posters PPB, PTB - Room: Foyer
PPB, Chairs: M. Walshe, L. van den Engel Hoek
PTB 1-10, Chairs: G. Ickenstein, M. Degeiter
PTB 11-21, Chairs: D. Farneti, G. Lawson

12:30-14:00       Lunch - Room: Atrium, Foyer and Studio Room
13:00-14:00  Symposium Fresenius Kabi “Impact of nutritional status on patient outcome” - Room: Studio Room
   1. The link between dysphagia and malnutrition. C. Sieber, Germany
   2. The benefits of nutritional support. A. Laviano, Italy

14:00 - 14:20  Session 18. Dysphagia as a geriatric syndrome, white paper - Room: Auditorium
   Chairs: G. Ickenstein, M. Bülow.
   Invited speakers: P. Clavé, Spain; D. Smithard, UK

14:20 - 14:40  Session 19. Parkinson’s disease and swallowing - Room: Auditorium
   Chairs: G. Ickenstein, M. Bülow.
   Invited speaker: H. Kalf, NL.

14:40 - 15:00  Session 20. Ethics in end-of-life swallowing issues - Room: Auditorium
   Chairs: G. Ickenstein, M. Bülow.
   Invited speaker: P. Cras, Belgium.

15:00-15:30  Coffee Break - Room: Atrium and Foyer

15:30 - 16:30  Session 21. Free papers “Dysphagia in neurological diseases” - Room: Auditorium
   Chairs: P. Belafsky, M. Remacle, G. Desuter.

   EFFECTS OF DEEP BRAIN STIMULATION ON DYSPHAGIC AND DYSARTHRIC SYMPTOMS IN PATIENTS WITH PARKINSON’S DISEASE
   Wieser, J. (Germany); Halm, K. (Germany); Falkenburger, B.H. (Germany); Binkofski, F.C. (Germany); Werner, C.J. (Germany)
THE EFFECTS OF LEVODOPA ON SWALLOWING SAFETY, KINEMATICS AND HYOID BONE PEAK MEASUREMENTS IN PARKINSON’S DISEASE
Michou, E. (United Kingdom); Puchooa, D. (United Kingdom); Hamdy, S. (United Kingdom)

DYSPHAGIA IN MULTIPLE SCLEROSIS: PREVALENCE, NATURE, AND ASSOCIATED RISK FACTORS
Constantinou, A. (Ireland); Pantzaris, M. (Cyprus); Ntzani, E. (Greece); Tziakouri, C. (Cyprus); Walshe, M. (Ireland)

COUGH REFLEX TESTING IN POST-STROKE PATIENTS WITH OROPHARYNGEAL DYSPHAGIA
Vilardell, N. (Spain); Rofes, L. (Spain); Clavé, P. (Spain)

COORDINATION OF BREATHING AND SWALLOWING IN MYOTONIC DYSTROPHY TYPE 1 (DM1)
Ginocchio, D. (Italy); Dotti, S. (Italy); Bianchi, F. (Italy); Bianchi, F. (Italy); Rao, F. (Italy); Lunetta, C. (Italy); Sansone, V. (Italy); Schindler, A. (Italy)

RESPIRATORY-SWALLOW PHASE PATTERNS AND SWALLOW APNOEA DURATION IN INDIVIDUALS WITH MULTIPLE SCLEROSIS AND DYSPHAGIA
Hill, F. (Ireland); McCabe, D.J.H. (Ireland); Murphy, S.M. (Ireland); Walsh, R.A. (Ireland); Walshe, M. (Ireland)

16:40-17:40 Case-Based Instructional Courses (IC): Pharyngeal Phase
IC4 VFS
S. Van der Vorst
P. Pokieser
Room: Auditorium

IC5 FEES
J. Vanderwegen
A. Schindler
Room: Jacques Brel

IC6 REHABILITATION: Techniques to ameliorate the pharyngeal phase
D. Bleeckx
R. Speyer
Room: Studio

19:30-22:00 Congress Dinner - Room: Metropole Hotel
08:00 - 08:20  **Session 22. Inflammatory disease and swallowing** - *Room: Auditorium*
Invited speakers: F. Houssiau, Belgium; G. Desuter, Belgium.

08:20 - 08:40  **Session 23. High resolution manometry in adults** - *Room: Auditorium*
Invited speaker: T. Vanuytsel, Belgium

08:40 - 09:00  **Session 24. New measures of UES distensibility** - *Room: Auditorium*
Invited speaker: J. Regan, Ireland.

09:00 - 09:30  **Session 25. Laryngopharyngeal reflux** - *Room: Auditorium*
Invited speaker: P. Belafsky, USA.

09:30-10:00  **Coffee Break** - *Room: Atrium and Foyer*

10:00 - 11:30  **Session 26. Free papers “Instrumental diagnosis / HNC”** - *Room: Auditorium*
Chairs: P. Clave, P. Pokieser, R. Speyer.

PRESSURE-FLOW ANALYSIS CORRELATES WITH CLINICAL MEASURES OF PAEDIATRIC DYSPHAGIA
*Ferris, Lara (Australia); Kritas, S. (Australia); McCall, L. (Australia); Rommel, N. (Belgium); Omari, T. (Australia)*

COMPARISON OF THE PREDICTIVE VALUE OF FLEXIBLE ENDOSCOPIC EVALUATION OF SWALLOWING WITH SENSORY TESTING (FEESST) AND CAPSAICIN INHALATION TEST (CIT) FOR SILENT ASPIRATION IN OROPHARYNGEAL DYSPHAGIA.
*Woisard, Virginie (France); Brouquieres, B.D. (France); Escamilla, R. (France)*
OBSERVER RELIABILITY FOR MEASUREMENTS IN FEES
Pilz, W. (Netherlands); Vanbelle, S. (Netherlands); Kremer, B. (Netherlands); van Hooren, M. (Netherlands); van Becelaere, T. (Netherlands); Roodenburg, N. (Netherlands); Baijens, L.W.J. (Netherlands)

ENDOFLIP REPRODUCIBLY AND ACCURATELY MEASURES PHARYNGOESOPHAGEAL JUNCTION DIAMETER, AND DETECTS CHANGES INDUCED BY ENDOSCOPIC DILATATION
Szczesniak, M. (Australia); Maclean, J. (Australia); Zhang, T. (Australia); Wu, P. (Australia); Cook, I.J. (Australia)

ASSESSMENT OF TONGUE PRESSURE AND LARYNGEAL MOVEMENT DURING SWALLOWING IN PARKINSON’S DISEASE PATIENTS
Minagi, Y. (Japan); Ono, T. (Japan); Hori, K. (Japan); Fujiwara, S. (Japan); Tokuda, Y. (Japan); Murakami, K. (Japan); Inoue, M. (Japan); Maeda, Y. (Japan); Sakoda, S. (Japan); Yokoe, M. (Japan); Mochizuki, H. (Japan)

SPECIFIC ENDOSCOPIC PROTOCOLS TO EVALUATE OROPHARYNGEAL SWALLOWING IN DIFFERENT NEUROLOGICAL DISORDERS
Warnecke, Tobias (Germany); Dziewas, R. (Germany)

EFFECT OF CHEMORADIOTHERAPY (CRT) ON MAXIMUM ISOMETRIC TONGUE PRESSURES (MIP) IN HEAD AND NECK CANCER (HNC) PATIENTS DURING AND IMMEDIATELY FOLLOWING TREATMENT -- PRELIMINARY DATA
Van Nuffelen, Gwen (Belgium); Van Nuffelen, G. (Belgium); Van den Steen, L. (Belgium); Allouche, J. (Belgium); Laurence, D. (Belgium); Schruers, A. (Belgium); Van Laer, C. (Belgium); Van Rompaey, D. (Belgium); Mariën, S. (Belgium); Van Gestel, D. (Belgium); Van de Weyngaert, D. (Belgium); Beaufonds, S. (Belgium); Cvilic, S. (Belgium); Daisne, J.F. (Belgium); Van de Heyning, P. (Belgium); Specenier, P. (Belgium); Peters, M. (Belgium); Lawson, G. (Belgium); Vanderveken, O. (Belgium); Vanderwegen, J. (Belgium)

LONG-TERM SWALLOWING AFTER CHEMORADIOThERAPY: A PROSPECTIVE STUDY OF PHYSIOLOGICAL AND FUNCTIONAL CHANGES OVER TIME
Frowen, Jacqui (Australia); Drosdowsky, A. (Australia); Perry, A. (Ireland); Corry, J. (Australia)

EFFECT OF THE EXTENT OF SURGICAL RESECTION ON LONG TERM SWALLOWING OUTCOMES AFTER HORIZONTAL PARTIAL LARYNGECTOMIES
Schindler, A. (Italy); Pizzorni, N. (Italy); Fantini, M. (Italy); Crosetti, E. (Italy); Bertolin, A. (Italy); Rizzotto, G. (Italy); Succo, G. (Italy)
11:30 - 12:00  Session 27. ESSD activities in research – European projects - Room: Auditorium
Chairs: G. Lawson.
Invited speaker: P. Clavé and ESSD project leaders.

12:00 - 12:30  Session 28. Posters PPC, PTC - Room: Foyer
PTC 1-10: Chairs: J. Vanderwegen, V. Woisard.

12:30-14:00  Lunch - Room: Atrium and Foyer

13:00-14:00  AIM Symposium “Pharyngeal flow analysis for diagnosis of swallow dysfunction” - Room: Auditorium
1. Pressure flow analysis: what can it tell about swallowing? T. Omari
2. Pressure flow analysis: how can it be used in clinic? N. Rommel

13:30-14:00  DJO Symposium - Room: Studio
1. Evaluation of dysphagia after brainstem lesion using manofluoroscopy. Z. Dou, China
2. Effect of surface sensory and motor electrical stimulation on chronic poststroke oropharyngeal dysfunction. P. Clavé, Spain

14:00 - 14:20  Session 29. The UES, state of the art - Room: Auditorium
Chairs: P. Pokieser, G. Desuter.
Invited speaker: P. Belafsky, USA.

14:20 - 14:40  Session 30. Oesophageal causes of dysphagia - Room: Auditorium
Chairs: P. Pokieser, G. Desuter.
Invited speaker: I. Herrmann, Italy.
14:40 - 15:00  
**Session 31. Pathophysiology of Oesophageal Dysphagia**  - Room: Auditorium  
Chairs: P. Pokieser, Austria; G. Desuter.  
Invited speaker: T. Omari, Australia.

15:00-15:30  
**Coffee Break**  - Room: Atrium and Foyer

15:30 - 16:30  
**Session 32. Free papers “Treatment”**  - Room: Auditorium  

- **PHARYNGEAL ELECTRICAL STIMULATION CAN ENHANCE SWALLOW PERFORMANCE BY MODULATING CORTICAL SWALLOWING NETWORK ACTIVATION**  
  Suntrup, S. (Germany); Teismann, I. (Germany); Warnecke, T. (Germany); Pantev, C. (Germany); Dziewas, R. (Germany)

- **EFFECTS OF CORTICAL STIMULATION ON SWALLOWING MANEUVER PERFORMANCE**  
  Humbert, Ianessa (United States)

- **SWALLOWING OUTCOMES FOLLOWING SKILL VERSUS STRENGTH TRAINING IN HEALTHY PARTICIPANTS**  
  Sella, Oshrat (New Zealand); Jones, R.D. (New Zealand); Huckabee, M.L. (New Zealand)

- **PHARYNGEAL ELECTRICAL STIMULATION: CLINICAL PRACTICABILITY, INTENSITIES, COMPLICATIONS AND FUNCTIONAL OUTCOME**  
  Ledl, Christian (Germany)

- **EFFECTS OF NEUROMUSCULAR ELECTROSTIMULATION AND RESPIRATORY MUSCLE TRAINING IN ACUTE/SUBACUTE DYSPHAGIC STROKE PATIENTS. RETORNUS: A RANDOMIZED CONTROL TRIAL**  
  Guillén-Solà, A. (Spain); Messagi-Sartor, M. (Spain); Barrera de Paz, C. (Spain); Bofill-Soler, N. (Spain); Rodriguez, D.A. (Spain); Duarte, E. (Spain); Marco, E. (Spain)

- **RANDOMIZED CONTROLLED CLINICAL STUDY TO ASSESS THE EFFICACY OF INCREASING SENSORIAL STIMULI AS A THERAPEUTIC STRATEGY IN THE TREATMENT OF OLDER PATIENTS WITH OROPHARYNGEAL DYSPHAGIA.**  
  Ortega, O. (Spain); Rofes, L. (Spain); Arreola, V. (Spain); Martin, A. (Spain); Clavé, P. (Spain)
16:30-17:00  Closing ceremony and awards  - Room: Auditorium

17:00-18:00  Case-Based Instructional Courses (IC): Oesophageal Phase

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<th>IC7  MANOMETRY</th>
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<th>IC9  REHABILITATION: a short summary of the oral, pharyngeal and oesophageal phase.</th>
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<td>G. Desuter</td>
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<td>Room: Jacques Brel</td>
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Acknowledgements

The ESSD board and LOC would like to thank all the speakers and chairs for taking the time to come and share their knowledge and expertise at our congress.
**Oral Presentations**

All presentations must be downloaded at the speakers’ ready room at least 3 hours before the session. Presenters will not be allowed to use their personal computers.

**Speakers’ ready room**

Presenters can preview their presentations here and must download them at least 3 hours before the session. It will open from 7:30 to 16:30 Thursday, Friday and Saturday. Presenters will not be allowed to use their personal computers.

**Posters**

Posters will be displayed in the Foyer, the sessions are included in the programme. Permanent posters (PPA, PPB and PPC) will be displayed for the 3 days and should be mounted before the a.m. coffee break on Thursday and removed at the end of the day on Saturday. Temporary posters (PTA, PTB and PTC) will be displayed for one day, PTA on Thursday, PTB on Friday and PTC on Saturday. Posters must be mounted before the a.m. coffee break and removed at the end of the day. Posters that are not collected will be discarded.

**Satellite symposia**

**Nutricia** is offering the symposium “From science to bedside” during the lunch break from 13:00-14:00 on Thursday 23 in the Studio Room.

**Fresenius-Kabi** is offering the symposium “Impact of nutritional status on patient outcome” during the lunch break from 13:00-14:00 on Friday 24 in the Studio Room.

There is a state of the art symposium on automated impedance manometry (AIM) “Pharyngeal flow analysis for diagnosis of swallow dysfunction” during the lunch break from 13:00-14:00 on Saturday 25 in the Auditorium.

**DJO** is offering a symposium on the separate topics of “Evaluation of dysphagia after brainstem lesion with manofluoroscopy” and “Effect of surface sensory and motor electrical stimulation on chronic poststroke oropharyngeal dysfunction” during the lunch break from 13:30-14:00 on Saturday 25 in the Studio Room.

**Abstract book**

Abstracts which are being presented in the congress are listed at the back of the programme in order of the sessions.
**Accreditation**

A certificate of attendance can be picked up from the registration desk at the end of the congress.

**Language**

The official language of the congress is English.

**Programme changes**

Delegates will be informed of any last-minute changes that have been made to the programme.

**Registration**

On-site registration is available but places are limited and material cannot be guaranteed. Delegate registration includes:
- Access to all congress sessions and commercial exhibition
- Delegate bag including all congress materials and a name badge
- Lunches and coffee breaks
- Welcome Reception on Wednesday 22 October at 18:00 pm at the Venue B44C in the Atrium. Registration in the congress will be possible from 17:00

The registration and secretariat desk will be open:

- Wednesday 22 October 17:00 – 19:00
- Thursday 23 October 07:00 – 18:00
- Friday 24 October 07:00 – 18:00
- Saturday 25 October 07:30 – 18:30
CONGRESS VENUE
BRUSSELS 44 CENTER (B44C)
Boulevard du Jardin Botanique 44
1000 Bruxelles – Belgium
Telephone: +32 2 222 54 89
Web page: http://www.b44c.com/

CONGRESS HOTEL
HILTON BRUSSELS CITY (main congress hotel)
PLACE CHARLES ROGIER 20,
BRUSSELS, 1210, BELGIUM
TEL: +32-2-2033125 FAX: 32-2-2034331

TRANSPORT
HOW TO GET TO B44C:

By train
The closest station to the venue, B44C is the Gare de Bruxelles – Congres. It is just a few meters away from the congress venue but is not open at the weekend. It is one stop from Central Station, direction Anvers (Antwerp) or Louvain.

By Metro
Lines 2 and 6 stop at Rodier and Botanique Kruidtuin stop which are very close to the venue.

By Tram
Lines 92 and 93 stop at Botanique Kruidtuin stop.

By bus
LOCAL BUSES:
Lines 318 / 351 / 410 stop at Sint-Joost-ten-Node Kruidtuin stop.

See map inside back cover.
TRANSPORTATION

Brussels International Airport
Belgium’s main airport is located in Zaventem, 12 km north of Brussels. From this airport, you can reach Brussels by train to Central Station, and there get a train direction Avers (Antwerp)-Central or Louvain to Brussels Congress, 1 stop or walk about 20 min along Imperatrice Boulevard (which changes its name to Berlaimont and then Pacheco Boulevard), see map inside back cover. A taxi will costs about €40 from the airport.

Brussels Charleroi-Sud Airport
This subsidiary airport is located 46 km South of Brussels and is similarly accessible by train, bus and taxi. An airport shuttle departs every 30 minutes from the airport to take passengers to Gare du Midi/Zuidstation. From here you can take the Metro Line 2 direction Elisabeth and get off at Botanique.

Bus, metro & tram
Inside Brussels, the bus, tram and metro services are the most convenient way to get around. These are operated by a single company, STIB/MIVB, and all three services are accessible with a single ticket.

Train
Long distance trains go to Gare du Midi/Zuidstation. From here you can take the Metro Line 2 direction Elisabeth and get off at Botanique.

Taxi
Autolux: + 32 (0)2 411 12 21
Taxis Bleus: + 32 (0)2 268 00 00
Taxis Orange: + 32 ((0)2 349 43 43
Taxis Verts: +32 (0)2 349 49 49

WEATHER
Belgium has a temperate climate noted for its damp summers and relatively mild and rainy winters. In October, you can expect an average low of 8°C, and an average high of 15°C.

BANKS AND EXCHANGE
Banks are usually open from 9 am to 3.30 pm, Monday to Friday. Some are also open on Saturday mornings.
CREDIT CARDS
Most credit cards, including American Express and Diners Club, are accepted in numerous stores, boutiques, restaurants, car hire firms, etc.

CURRENCY
The currency in Belgium is the Euro (EUR).

ELECTRICITY
In Belgium, the standard voltage is 220V 50Hz. If you have equipment that runs on a lower voltage, you should not connect it to the Belgian power net unless you have the correct transformer (voltage adaptor).

SHOPPING HOURS
Stores normally open from 9 or 10am to 6pm Monday to Saturday. On Friday evening, many center-city stores stay open until 8 or 9pm. Most stores are closed on Sunday, except the tourist-orientated ones around the Grand-Place.

TOURIST INFORMATION
Shopping Hours
Stores normally open from 9 or 10am to 6pm Monday to Saturday. On Friday evening, many center-city stores stay open until 8 or 9pm. Most stores are closed on Sunday, except the tourist-orientated ones around the Grand-Place.

Places to visit in Brussels:
Social Programme

Welcome reception
The welcome reception will be held in the congress venue B44C in the Exhibition Hall in the Atrium at 18:00 on Wednesday, 22 October. Delegates will be able to register in the congress from 17:00

Congress Dinner
The congress dinner will take place on Friday 24 October at 19.30 at the Hotel Metropole. Tickets are 60€ for all delegates including speakers, guests and committee members, and should be booked with the registration. Some late reservations will be available on site and will close Thursday morning.
Acknowledgements
ESSD and the Local Organizing Committee would like to thank the gold sponsors Fresenius Kabi and Nutricia, the silver sponsor DJO and all the exhibitors and collaborators for their participation in the congress.
GOLD SPONSORS

Fresenius Kabi is a leading international health care company focusing on products for the therapy and care of critically and chronically ill patients inside and outside the hospital. Fresenius Kabi develops, produces and markets pharmaceuticals and medical devices. The product portfolio comprises a comprehensive range of I.V. generic drugs, infusion therapies and clinical nutrition products as well as the medical devices for administering these products. Within transfusion technologies, Fresenius Kabi have products for the whole blood collection and processing as well as for transfusion medicine and cell therapies. In the field of Enteral Nutrition, Fresenius Kabi offers a broad portfolio of ready to use tube feeds, oral nutritional supplements as well as powder products. For dysphagia patients and/or as an alternative to sips feeds, Fresenius Kabi offers texture modified products in different consistencies to meet the individual needs of different patients. With the corporate philosophy of “caring for life”, Fresenius Kabi is committed to supporting medical professionals in the best therapy of patients.

About Nutricia Advanced Medical Nutrition

Nutricia is a specialised healthcare unit of Danone, one of the fastest-growing food companies in the world. Nutricia expands and completes Danone’s mission to bring health through food to as many people as possible, by focusing on support for vulnerable people who are at nutritional risk for health reasons. Nutricia develops innovative, science-based nutrition concepts that deliver proven benefits and better clinical outcomes for patients, and so help to lower the overall cost of their care. Working in partnership with doctors, health care professionals, and caregivers, the company offers a very broad range of products for many conditions and age groups, especially in paediatrics, in critical care, and in the management of old age and frailty. www.Nutilis.com

SILVER SPONSORS

DJO Global is a leading global developer, manufacturer and distributor of high-quality medical devices that provide solutions for musculoskeletal health, vascular health and pain management. The Company’s products address the continuum of patient care from injury prevention to rehabilitation after surgery, injury or from degenerative disease, enabling people to regain or maintain their natural motion. Its products are used by orthopedic specialists, spine surgeons, primary care physicians, pain management specialists, physical therapists, podiatrists, chiropractors, athletic trainers and other healthcare professionals. In addition, many of the Company’s medical devices and related accessories are used by athletes and patients for injury prevention and at-home physical therapy treatment. The Company’s product lines include rigid and soft orthopedic bracing, hot and cold therapy, bone growth stimulators, vascular therapy systems and compression garments, therapeutic shoes and inserts, electrical stimulators used for pain management and physical therapy products. The
Company’s surgical division offers a comprehensive suite of reconstructive joint products for the hip, knee and shoulder. DJO Global’s products are marketed under a portfolio of brands including Aircast®, Chattanooga, CMF™, Compex®, DonJoy®, Empi®, ProCare®, DJO® Surgical, Dr. Comfort® and ExosTM. For additional information on the Company, please visit www.DJOglobal.com.

EXHIBITORS

The Iowa Oral Performance Instrument (IOPI) objectively measures tongue and lip strength and provides biofeedback for oral motor exercise. These measures aid professionals in the treatment and study of dysphagia by objectively documenting deficits that justify treatment, diagnostically differentiating between muscle weakness and problems of motor control, and motivating patients by showing them their progress from muscle exercise therapy.

Kent Precision Foods Group
www.thickit.com
Dedicated to a customer-first approach, our Thick-It® team has one mission: to provide dysphagia nutrition solutions that simplify the lives of our customers and their caregivers. Our team of experts features speech-language pathologists, registered dietitians and scientists. Together, we strive to constantly improve our products, and make them accessible in healthcare facilities and at home.

Product Quality
Thick-It products are made with high quality ingredients. Our thickened beverages feature Artesian Mineral water, sugar-free options and 100% natural juices. The purees are made with real food ingredients, and have options for restricted diets, including gluten-free and low-sodium options. Our thickening products do not alter the taste of pureed foods and beverages with which they are mixed, and will consistently exceed your expectations.

Consumer Satisfaction
Everything we do is focused on our consumers and their families, providing those challenged by dysphagia with a variety of life-enhancing hydration, nutrition and safety benefits, as well as an ever-growing library of recipes. People with swallowing problems and their caregivers have access to our dysphagia nutrition experts to receive valuable answers and knowledge that can help them simplify their lives.

Nestlé Health Science
makes a positive difference to the nutritional health, well-being and quality of life of people through innovative, medically recognised nutritional solutions. Our solutions help optimise the nutritional intake of people who aim to combat disease, recover or stay healthy. Our range addresses various nutritional needs and related services including patient and healthcare professional education and training. Innovations are developed with Nestlé Institute of Health Sciences and the Nestlé R&D network. The Institute
enables a deeper understanding of interactions between chronic disease, lifestyle and nutrition, which enables Nestlé Health Science to develop new products.

Phagenesis Ltd is committed to transforming the lives of people with dysphagia, using revolutionary treatments developed through a commitment to scientific and clinical excellence. The first product to be launched is Phagenyx.

Phagenyx is the first dysphagia treatment clinically proven to improve swallow function using pharyngeal stimulation to restore neurological control.

Dysphagia significantly increases the risk of stroke patients developing life-threatening pneumonia and can also lead to malnutrition and poor quality of life. Phagenyx offers a unique opportunity to treat the cause of dysphagia, thereby reducing the risk of complications and associated costs and improving outcomes.

“PROTiP Medical is dedicated to developing innovative solutions for patients suffering from larynx disorders.

PROTiP Medical introduces “NewBreez”, an intralaryngeal prosthesis intended to treat patients with intractable aspiration due to progressive neurologic disease or devastating injury secondary to stroke, trauma, or surgery.”

COLLABORATORS

Cook Medical is a family owned global leader in medical devices. Since 1963, we have worked with physicians to create minimally invasive medical devices because they’re simpler, safer, and better for patients. Our Otolaryngology-Head and Neck Surgery (OHNS) clinical division collaborates with clinicians to streamline procedures and introduce proven product technology like the Hercules® 3-Stage Wire Guided Balloon. This balloon allows physicians to dilate narrowed areas of a patient’s oesophagus with strength and accuracy. The control that the Hercules balloon provides physicians reduces the risk of trauma to patients and the balloon’s 3-Stage design allows procedures to be completed quickly.

PENTAX Medical and KayPENTAX offer best solutions in Speech, Voice and Swallowing.

The excellent reputation of KayPENTAX in diverse areas of laryngeal imaging, acoustics, swallowing instrumentation and aerodynamics has been established for many years. PENTAX Medical offers flexible endoscopes with cutting edge optical technology and exceptional visual quality. The products deliver outstanding precision in endoscopy, including innovative HD+ and i-scan technology. Together, PENTAX Medical and KayPENTAX offer a product range which adds value to the daily practice in speech, voice and swallowing.
**OP3.2 THE DIAGNOSTIC ACCURACY OF CLINICAL FEEDING EVALUATION IN DETECTING ASPIRATION IN CHILDREN. EXPLORING THE EVIDENCE.**

I. Calvo; A. Conway; M. Walsh

**Introduction:** Oropharyngeal aspiration (OPA) is one of the most severe consequences of oropharyngeal dysphagia, leading to respiratory complications and malnutrition. OPA has been documented in several clinical conditions in the paediatric population, its prevalence varying from 26% to 94%. Clinical feeding evaluation (CFE) is the most common and feasible examination of feeding and swallowing abilities in children detecting the clinical signs and symptoms of OPA, such as coughing, wet voice, respiratory changes during feeding, and apnoea. Instrumental assessment is often unavailable or not tolerated for this population so CFEs with high diagnostic accuracy are required. The aim of this systematic review is to determine the diagnostic accuracy of CFE compared to instrumental assessments in detecting OPA in children. This is important to support clinical decision making and provide better, safe cost-effective, higher quality care.

**Materials and Methods:** All published and unpublished studies in all languages assessing the diagnostic accuracy of CFE compared to VFSS and/or FEES in detecting OPA in a paediatric population were sought. Databases (Pubmed, EMBASE, CINHAL, PsycINFO, Scopus, Proquest, Web of Science) were searched from inception to April 2014. Grey literature, citations and references were also retrieved. Data were extracted and analyzed by two independent reviewers. Results and Discussion: 5669 studies were identified with only 6 eligible for inclusion. Methodological quality of the included studies was assessed using the QUADAS-2 tool. Overall, methodological quality of the studies was poor. Findings are presented. The critical lack of evidence and research in the area is highlighted. Implications for clinical practice and further research are discussed.

**OP3.3 REHABILITATING DYSPHAGIA IN CHILDREN: CURRENT EVIDENCE AND DIRECTIONS FOR RESEARCH.**

M. Walsh; C. Harding

**Introduction:** The number of infants and children with feeding, eating and drinking difficulties is hard to quantify as a typical caseload covers a wide range of disorders and epidemiological data is scant. Previous estimates range from 25 - 45% in typically developing children, with an increase to 80% with developmental disorders (1 - 5). The prevalence of dysphagia in children is thought to be increasing due to improved survival of premature infants (2). In paediatrics, research does not differentiate clearly between sensory, behavioural, oral phase and pharyngeal phase disorders and this makes interpretation of outcomes difficult to apply clinically (1). A range of interventions are utilised and include: positioning; environmental changes; sensory and behavioural management; texture modification and oral motor exercises (6). The aim of this paper is to examine the evidence supporting these interventions and to consider future developments. Materials and Methods: All randomised controlled trials and quasi experimental studies on interventions for paediatric dysphagia were sought. A range of electronic data bases were searched from inception to February 2014. Methodological quality of studies was rated using the Cochrane Risk of Bias tool. Sub group analysis was carried out on individual interventions and specific paediatric populations. Results: Few studies evaluated met the inclusion criteria for methodological quality. However, there is a developing evidence base to support some interventions used in paediatric dysphagia rehabilitation. Conclusion: Research supporting interventions for dysphagia within paediatrics is polarised and variable in content. There is a need for well-designed clearly reported clinical trials with strong protocols and robust assessments.

**OP3.4 RELATIONSHIP BETWEEN HOSPITALIZATION AND DEGLUTITION DISORDERS IN InfANTS AT INTENSIVE CARE UNITS.**

T. Rodrigues; F.R. Silveira; F.S. Soria; M.J. Machado; A.M. Furkim

**Introduction:** Oropharyngeal aspiration (OPA) is one of the most severe consequences of oropharyngeal dysphagia, leading to respiratory complications and malnutrition. OPA has been documented in several clinical conditions in the paediatric population, its prevalence varying from 26% to 94%. Clinical feeding evaluation (CFE) is the most common and feasible examination of feeding and swallowing abilities in children detecting the clinical signs and symptoms of OPA, such as coughing, wet voice, respiratory changes during feeding, and apnoea. Instrumental assessment is often unavailable or not tolerated for this population so CFEs with high diagnostic accuracy are required. The aim of this systematic review is to determine the diagnostic accuracy of CFE compared to instrumental assessments in detecting OPA in children. This is important to support clinical decision making and provide better, safe cost-effective, higher quality care. Materials and methods: All published and unpublished studies in all languages assessing the diagnostic accuracy of CFE compared to VFSS and/or FEES in detecting OPA in a paediatric population were sought. Databases (Pubmed, EMBASE, CINHAL, PsycINFO, Scopus, Proquest, Web of Science) were searched from inception to April 2014. Grey literature, citations and references were also retrieved. Data were extracted and analyzed by two independent reviewers. Results and Discussion: 5669 studies were identified with only 6 eligible for inclusion. Methodological quality of the included studies was assessed using the QUADAS-2 tool. Overall, methodological quality of the studies was poor. Findings are presented. The critical lack of evidence and research in the area is highlighted. Implications for clinical practice and further research are discussed.

**Conclusions:** The function of swallowing is carrying the food from the mouth to the stomach with the main purpose of nourishing and moisturizing the individual. Swallowing begins in the womb. At birth, the term baby presents coordination between the functions of sucking,
swallowing and breathing. In general, maintaining these sucking re-
flexes facilitates the process of breastfeeding. In premature infants, 
the ability to suck is not complete. In this context, the purpose of this 
study is to relate the time of admission and the presence of swallowing 
disorders in babies helped in the Neonatal ICU at the University Hospital 
of the Federal University in Santa Catarina, Brazil (UFSC HU). Methodol-
ogy: A prospective cross-sectional study conducted in the Neonatal Unit 
of the University Hospital of the Federal University in Santa Catarina, 
Brazil. Data on comorbidities, use of alternative means of supply and 
use of respiratory support were collected from medical records of ba-
bies. Results: Of the twenty-two (22) babies, twenty (20) of them had 
swallowing disorders and they might stay in hospital longer (p = 0.0483).
Comorbidities that influenced the time of admission were APGAR index 
value (p = 0.0001), use of respiratory support (p = 0.0034), anemia (p 
= 0.0034), respiratory distress syndrome (p = 0.0050) and apnea (p 
= 0.0233). For alternative routes of supply, the greater the length of 
stay, the greater the time spent with probe (P = 0.0001). Discussion: 
Infants who had difficulty swallowing, and had used alternative feed-
ing, had increased hospitalization time. The use of respiratory support, 
the APGAR index, respiratory distress syndrome, anemia and apnea also 
contributed to the increased length of hospitalization.

OP3.5 EVALUATION OF SWALLOWING FUNCTION IN CHILDREN WITH 
CEREBRAL PALSY GRADES IV AND V BY THE GROSS MOTOR FUNCTION 
CLASSIFICATION SYSTEM 
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zil; ²Medical School of Ribeirão Preto, University of Sao Paulo, Brazil; ³Trinity 
College Dublin, Ireland; ⁴Clinical Director of Archbishop Makarios III, NICU, Nicosia, Cyprus 
Introduction: Children diagnosed with cerebral palsy (CP) often present 
oropharyngeal dysphagia due to aggression that occurs in the central 
nervous system, affecting the neuromotor control of swallow-
ing. Our aim was to assess swallowing in children with CP and grades 
IV and V by the Gross Motor Function Classification System (GMFCS). 
Material & methods: Swallowing assessment by videofluoroscopy was 
applied to 30 children (17 girls), aged seven months to 15 years, with 
oropharyngeal dysphagia consequent to CP. Each subject was asked 
to swallow paste and, when possible, solid and liquid boluses. All of 
them had mobility classified as grades IV (n=10) and V (n=20) by the 
GMFCS. Swallowing was classified by the penetration-aspiration (P/A) 
grade IV and 55% in grade V were classified as level 1 (severe dysphagia). 
Among patients classified as level 8 in the P/A scale, 42.9% in grade 
IV and 73% in grade V had severe dysphagia. Thirty percent of grade 
IV and 05% grade V were classified as level 1 in the P/A scale. Among 
the grade IV patients level 1 in P/A scale, 67% had severe dysphagia.
Conclusions: There was no difference in oral and pharyngeal phases, 
between patients with CP grades IV and V in the GMFCS. There was no 
relationship with penetration/aspiration and severity of dysphagia.

OP3.6 FREQUENCY, NATURE, AND EXTENT OF FEEDING AND SWAL-
LOWING DIFFICULTIES IN PRETERM INFANTS IN CYPRUS. A LARGE 
SCALE EPIDEMIOLOGICAL STUDY 
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land; ²Clinical Director of Archbishop Makarios III, NICU, Nicosia, Cyprus 
Introduction: The prevalence, incidence and nature of feeding and swallow-
ing difficulties in preterm infants is unknown. The aim of this study 
is to provide epidemiological data on feeding and swallowing difficul-
ties in preterm infants with Extremely Low Birth Weight (ELBW), Very 
Low Birth Weight (VLBW), and Low Birth Weight (LBW) in Cyprus. Such 
epidemiological data will be valuable beyond the context of Cyprus, 
informing service provision through knowing frequency, patterns and 
profiles of impairment across this population. Materials & Method: A 
retrospective file audit was completed on all preterm infants admitted 
to the only Neonatal Intensive Care Unit (NICU) in Cyprus covering a two 
year period (January 2009 to December 2010). Gestational Age (GA), 
Birth Weight (BW), gender, Length of Stay (LOS), primary diagnosis, co-
morbidities on discharge, mortality, and feeding method upon discharge 
data were retrieved on 1,027 infants admitted in that period to NICU. 
A second study commenced collating similar data but, prospectively 
examining feeding and swallowing difficulties on preterm infants ad-
mitted to this NICU from January to December 2013. Results: On the 
retrospective study only 15 infants (0.01%) were documented as having 
a feeding difficulty. Prospectively 456 preterm infants were admitted to 
the NICU in 2013. Feeding and swallowing skills of all ELBW, VLBW and 
some LBW infants were assessed XXX Infants in total were assessed 
detail. 82 (17.98%) had feeding and swallowing difficulties. Infants 
were followed up at 3 and 6 months. Detailed findings will be presented. 
Conclusion: This study captures unique important epidemiological data 
on preterm infants born on the island of Cyprus at a specific time pe-
riod. The implications of the findings are discussed.

11:00 – 12:00 Free papers “Screening and Assessment”
Abstract Book

OP5.2 VALIDITY AND RELIABILITY OF THE DUTCH VERSION OF THE DYSPHAGIA HANDICAP INDEX (DHI)

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Introduction. This study examined the psychometric properties of the Dutch version of the Dysphagia Handicap Index (DHI) in participants with oropharyngeal dysphagia (OD) using quality criteria as proposed by Terwee et al. (2007). Materials and methods. Participants included 51 patients with OD (31 M, 20 F; mean age 66 y; range 26 — 88 y). Patients completed three questionnaires: 1) the DHI, 2) the Swal-Qol, and 3) the Dysphagia Severity Scale (DSS). Results: Good test-retest reliability was found for the total and subscales scores of the DHI (0.82 ≤ r ≤ 0.89); no floor or ceiling effects were present. The outcome of a confirmatory factor analyses supported the presence of three subscales explaining 60.6 % of the variance. Cronbach’s α ranged between .78 and .92, indicating good internal consistency. Correlations between the DHI and the OSS supported moderated construct validity (.58 ≤ r ≤ .64). Correlations between the DHI and the Swal-Qol describing criterion validity, ranged markedly from poor to good (.00 ≤ r ≤ .87). Discussion: Preliminary analyses of the psychometric properties of the Dutch version of the DHI support a moderate overall quality rating. These findings warrant further investigation using a larger sample of patients with OD.

OP5.3 COMPARISON OF COUGH REFLEX TEST AGAINST STANDARD SWALLOWING SCREENING TEST

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Introduction: Silent aspiration is poorly identified by traditional clinical swallowing evaluation. In the last decade, several studies have documented sensitivity of a cough reflex test (CTR) for detection of aspiration. Recently, Miles et al. (2013) reported significant associations between CTR results to aspiration on VFSS (p<0.001) and FEES (p<0.01). The aim of this study was to assess the usefulness of the CTR, combining it with a standard screening test for swallowing. METHODS: 100 neurogenic patients (50 dysphagic and 50 not dysphagic) and 100 health participants were recruited to the study. Subjects first underwent cough reflex threshold testing using incremental concentrations of citric acid, interspersed with placebo concentrations. This was followed by a water swallow test (WST) (5ml; 10ml; 20 ml), and oxygen saturation, wet voice, gag reflex assessments. All subjects were video recorded during the assessment. RESULTS: There were no significant differences between healthy participants (HP) and non-dysphagic neurogenic (NDP) patients on CTR; all participants coughed at concentrations ≤ 0.1M. Dysphagic patients (DP) coughed at concentrations significantly higher than NDP and HP (p<0.05 and p<0.001). A significant positive correlation between CTR and WST was found in the analysis across all participants (p<0.001). 10% of the dysphagic patients were excluded because they were minimally responsive and were unable to perform the WST. In addition, the oxygen saturation and the gag reflex did not correlate with the presence of dysphagia. CONCLUSIONS: The CTR is correlated significantly with the WST. Unlike the WST, it could be administered to severely impaired patients in order to assess the reflex of the airways protection.

OP5.4 SPEECH PATHOLOGY RELIABILITY FOR STROKE DYSPHAGIA SCREENING ITEMS

S.K. Daniels¹; S. Pathak²; C.B. Stach¹; T. Mohr¹; J.A. Anderson¹; R.O. Morgan²; ¹Michael E. DeBakey VA Medical Center, United States; ²University of Texas Health Sciences Center, United States

Introduction: While nurses generally complete dysphagia screening in stroke patients, their accuracy is compared to the gold-standard speech-language pathologist (SLP). This study examined SLP reliability in stroke dysphagia screening. Materials and Methods: Dysphagia screening was completed in 61 patients admitted with stroke symptoms to the Michael E. DeBakey Veterans Affairs Medical Center, Houston, TX, USA. Screening items were lethargy; dysarthria; wet voice; abnormal volitional cough; and cough, throat clear, wet voice, and ability to continuously drink with ingestion of 5 ml and 90 ml water. Two SLPs (each with more than 10 years of experience) made simultaneous independent judgments of the same observations obtained from the screening. Results: Overall, substantial agreement was identified between the SLPs (k[SE] = .80[.03]). Individual kappas ranged from .60 (moderate) to .93 (almost perfect), with 3 items omitted due to minimal variation. The lowest level agreements were for dysarthria, abnormal volitional cough, and wet vocal quality after swallowing, whereas the highest level of agreements were for cough and throat clear after swallowing. Discussion: SLPs demonstrate high reliability in dysphagia screening. Results, however, indicate some potential variability among SLPs in items involving auditory perceptual judgments. Nurses do not have the dedicated education or daily clinical experience to establish sensitive perceptual discrimination. This must be considered when identifying screening items, educating nurses, and determining acceptable levels of reliability.
OP5.5 RELIABILITY OF SCREENING AND BEDSIDE PROCEDURES IN THE MANAGEMENT OF ACUTE STROKE PATIENTS IN A COMMUNITY HOSPITAL

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Purpose In our institution, a screening program has been proposed to test the validity of a clinical program in the management of acute stroke patients. Method In a sample of 52 in-patients (26M/26F, mean age 76.28 yrs), seen on Emergency wards at Rimini Hospital within 24 hours after stroke, from April to August 2013, the TOR-BSST (Toronto Bedside Swallowing Screening Test) was performed by an SLP. All the patients were then submitted to MASA (Man Assessment of Swallowing Ability), performed blindly by two SLPs, after 24 hours and to FEES (Fiberoptic Endoscopic Evaluation o Swallowing) (gold standard), performed by a phoniatrican, unaware of the previous test results. During FEES, P-score (Pooling score), P-SCA score (Pooling-Sensation, Collaboration, Age score) and PAS (Penetration-aspiration scale) were applied. Results 33 patients result PASS to TOR-BSST, 18 patients had a MASA score <170, 7 patients presented aspiration and 7 penetration at FEES. The correlation between TOR-BSST and aspiration was not significant (Pearson chi²=0.6657, Pr=0.197) but significant for penetration (Pr=0.032). The correlation with aspiration and MASA<170 was significant (Pr=0.016) as the same for TOR-BSST and MASA<170 (Pr=0.030). The correlation among MASA and P-score, P-SCA score and PAS is significant (Spearman’s test=0.000 respectively). The results of these instrumental tests vary with the results of TOR-BSST (Kruskal-Wallis test=0.0123 for P-score, 0.0163 for P-SCA score and 0.00357 for PAS) and MASA <170 (Kruskal-Wallis test=0.001 for P-score, 0.001 for P-SCA score and 0.001 for PAS). Conclusion In our samples, the correlation among screening, bedside and endoscopic results is good. A screening program with the temporal characteristic used in our institution seems to be valid.

OP5.6 ‘HOW ABOUT SWALLOWING?’

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Introduction: In daily clinical practice, patients are asked about their swallowing as part of the patient-clinician interview. This study compares the screening for oropharyngeal dysphagia (OD) based on a single question (usual care) with the results retrieved by the Eating Assessment Tool (EAT-10). Materials and methods: Participants included 281 outpatients at risk of OD: 153 men and 128 women with a mean age of 69 years. During their visit at the clinic, patients answered the open question ‘How about swallowing?’ and filled in the EAT-10, a ten-item functional health status questionnaire. Results: All answers to the single question were dichotomised (no problems, difficulties in swallowing). Using the EAT-10 as reference test, the sensitivity (Se), specificity (Sp), positive (PPV) and negative predictive value (NPV) of the single question were calculated: Se = .73, Sp = .72, PPV = .91 and NPV = .41. Discussion: The results indicate a moderate diagnostic performance of the single question compared to the EAT-10. Further research will determine the criterion validity by comparing the current data with fiberoptic or videofluoroscopic recordings of swallowing.

OP10.2 SPATIOTEMPORAL CHARACTERISTICS OF THE PHARYNGEAL CORTICAL SENSORY EVOKED POTENTIAL IN HEALTHY SUBJECTS AND PATIENTS WITH OROPHARYNGEAL DYSPHAGIA

E. Flynn; M. Walshe¹ / Trinity College Dublin, Ireland

Introduction: We aimed to characterize the cortical response to pharyngeal electrical stimulus in healthy volunteers (HV) and patients with oropharyngeal dysphagia (OD). Methods: 8 HV and 8 OD patients were studied by EEG. We applied 4 sets of 50 intra-pharyngeal electrical stimuli at 75% of the maximum tolerated intensity. We measured the latency, amplitude and cortical distribution of pharyngeal sensory evoked potentials (PSEP) through 32 cortical electrodes.

Conclusions As physiological demands of the task deviate from single sips to sequential drinking and from NCTL to CTL, the integration of swallowing and respiratory disorders can require diet modification, thus an increased understanding of this area is needed. This study examines(1) the influence of swallowing task (sip vs sequential drinking) on respiration(2)the effect of carbonated (CTL) and non carbonated (NCTL) thin liquids on respiration(3)the relationship between bolus type and bolus presentation on respiration and swallowing in healthy adults. Materials & Methods Breathing patterns, changes in tidal lung volume, direction of airflow, and dyspnoea were measured on 16 healthy adults. They were given 200mls and 10mls of CTL and NCTL. Measurement tools were surface electromyography, nasal cannula, respiratory inductance plethysmography and perception of dyspnoea scale.Data was recorded on Kay Pentax Swallowing Signals Lab™. Results Breathing patterns altered for different bolus presentations and bolus types. Bolus presentation was significantly associated with changes in tidal lung volumes at swallow initiation for CTL. Bolus type was associated with changes in tidal lung volumes. Tidal lung volumes were greater for CTL. Dyspnoea was reported by 11/16 participants for sequential drinking of CTL only. Conclusions As physiological demands of the task deviate from single sips to sequential drinking and from NCTL to CTL, the integration of swallowing and respiratory changes in healthy adults. Implications for management of dysphagia and respiratory difficulties are discussed.
Results: The HV sensory threshold (27.1±6.2 years) was 5.9±3.5 mA and OD patients’ (78.6±6.7 years), 10.3±3.8 mA (P<0.01). The HV tolerance threshold was 24.5±9.7 mA and patients; 21.0±12.45 (P=0.547). The PSEP wave form had 2 negative and 2 positive peaks; amplitude and latency are shown in Table 1.

As to the cortical distribution, N1 had a centro-lateral parietal distribution in HV (max. amplitude at Cz, C3, C4, CP3, CP4), which was more frontal in OD patients (max amplitude at Fp1, F3, FC3, CP3, FT7). The highest amplitude at P1 was in the frontal electrodes in HV (F3, F4, Fz) and in the fronto-polar region in patients (Fp1, Fp2, FPz). N2 showed similar distribution to N1, and maximum amplitude at P2 was in the vertex in HV but only present in 2 patients. Conclusions: OD patients were less sensitive to pharyngeal electrical stimuli. In HV, there was an initial activation of the somato-sensory cortex followed by the frontal cortex, involved in sensory modulation of swallowing, and later peaks probably related to the secondary process. In OD patients, PSEP showed significantly lower amplitude and different cortical distribution. These results indicate that cortical processing of the pharyngeal sensory stimuli is impaired in patients with OD, which may be a key factor in its pathogenesis.

OP10.3 EFFECTS OF BODY-RELATED PARAMETERS ON SINGLE SIP VOLUMES IN HEALTHY ADULTS
S.P. Peiffers; U.F. Frank / University of Potsdam, Germany
Introduction: Single sip sizes are highly variable and influenced by body-related factors such as age (Steele & van Lieshout 2004) and gender (Adnerhill et al. 1989). An impact of height has been discussed (Lawless et al. 2003, Alves et al. 2007). Thus, water swallow protocols with standardized test bolus volumes may not reflect individual drinking behavior. Our objective was to confirm and further identify relations between the individual single sip size and the factors age, gender, height, body mass index (BMI), oral volume and range of mouth opening (RMO) in healthy adults. Materials & Methods: In a repeated measures design we elicited 4 normal single sips and one maximum single sip from 52 healthy adults. The study sample was controlled for age (group 1: 20-39; group 2: 40-59) and gender (13 males, 13 females per age group). Oral volume was elicited by instructing the participants to fill the mouth to a maximum with water and swallow afterwards. Range of mouth opening was obtained by using the Range of Motion Scale™ (TheraBite®). Results: We found a significant difference in normal single sip volumes between age groups (group 1: M = 34.1 ml (SD = 14.3), group 2: M = 23.9 ml (SD = 9), Wilcoxon, p < .01), Gender was not a significant factor. Regarding body size parameters we found correlations between BMI (r(50) = .404, p < .05) and oral volume (r(50) = .300, p < .05) and normal sip volumes, no correlation was found with height and RMO. Conclusions: The results provide evidence that age, BMI and oral volume correlate with the individual sip volume. Contrary to other studies, gender and height had no clear impact in our study. Further research is needed to develop water swallow tests with customized bolus sizes that reflect individual drinking behavior.

OP10.4 CEREBRAL LATERALITY FOR SWALLOWING: EVIDENCE FROM THE MODIFIED DUAL TASK PARADIGM
R. Balasubramanium / Manipal University, India
Introduction: The role of cortex and its influence on swallowing is still a question. The present study was undertaken with an aim to investigate if cerebral hemispheric laterality controls swallowing activity. Materials and methods: Thirty normal right handed participants were subjected to time test of swallow using 100ml of water. Dual paradigm was used which involved listening to the speech or music stimuli presented binaurally while swallowing. The total time taken and hyolaryngeal movements were measured simultaneously which was used to calculate volume/time, volume/swallow and time/swallow on an offline basis. Results: Results of One way ANOVA revealed that swallowing performance decreased with the dual task paradigm compared to baseline swallow at p<0.05. Moreover, quantitative parameters like volume/swallow and volume/time was affected when speech was presented with swallowing at p<0.05. Moreover, thought interference of music for swallowing was greater than that of speech for time/swallow, the difference was not statistically significant. Discussion: These results are suggestive of cortex playing a role during swallowing in the dual task paradigm. Results also revealed decreased mean values for volume per swallow and swallowing capacity when speech was presented with swallowing, and decreased mean values for time per swallow parameter when music was presented with swallowing. Thus, it can be assumed that left hemisphere is dominant for quantity related parameters like volume and right hemisphere for temporal parameters like time which suggests the existence of differential cue lateralization hypothesis in swallowing.

OP10.5 OROPRESS A NEW WIRELESS TOOL FOR MEASURING ORO-LINGUAL PRESSURES: A PILOT STUDY IN HEALTHY ADULTS
J. McCormack; A. Perry; R. Conway; J. Saunders; V. Casey / University of Limerick, Ireland
Introduction Commercially available tools for measuring oro-lingual pressures have poor/unknown, psychometric properties (stability, reliability) which mean their clinical utility is questioned (Table 1). A new
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wireless tool, OroPress, has been designed to address these shortcomings (Fig 1). In this pilot cohort study, the properties of OroPress were examined when it was used to measure oro-lingual pressures during (i) isometric tongue strength (ITS) tasks (ii) isometric tongue endurance (ITE) tasks. The effects of gender on OroPress results were examined and compared against published data recorded using the Kay Swallowing Workstation and the Iowa Oral Performance Instrument.

Methods Thirty five normal adults (M=17, F=18), were recruited at the University of Limerick, Ireland. Their oro-lingual pressures were recorded using OroPress, during two ITS and two ITE tasks. An independent-samples t-test and ANOVA was used to examine the effect of gender on ITS pressures and an independent-samples t-test was used for the effect of gender on ITE pressures.

Results OroPress was described as easy to use by student clinicians and the intra-oral sensor was comfortable and felt non-invasive for participants. Data from 34 participants (M=16, F=18) were analysed. Males did not demonstrate significantly higher mean ITS pressures than females (P=0.057), but this approached significance, and there was no gender effect for ITE oro-lingual pressure. These results were consistent with published data from studies where oro-lingual pressures were measured with other tools.

Conclusions Valid measures of ITS and ITE oro-lingual pressures were obtained using OroPress. This tool shows promise for being a criterion standard for recording oro-lingual pressures during isometric tasks.

OP10.6 ORAL VESTIBULE PRESSURE PRODUCTION BY LIPS AND CHEEKS FROM MASTICATION TO SWALLOWING
M. Nishiura; T. Ono; M. Yoshinaka; S. Fujiwara; M. Yoshinaka; Y. Maeda
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Introduction: Oral soft organs such as lips, cheeks and tongue work in coordination with jaw movement during food oral processing. However there are much fewer studies that pay attention to lips and cheeks function than to tongue and jaw. This study is aimed to evaluate the state of oral vestibule pressure produced by lips and cheeks contraction from mastication to swallowing. Materials and methods: Oral vestibule pressure (OVP) produced on the maxillary dentition (midline, right canine, right and left first molars) from mastication to swallowing of a gummy jelly (5.5g, UHA-mikakuto, Osaka, Japan) was measured by four pressure sensors (PSM-1KAB CKyowa-dengyo, Tokyo, Japan) installed in the thin thermo-plastic plate (Erkodule CErkodent CPfalzgrafenweiler CGermany) in eight healthy men (average age; 29.8 years). Subjects were instructed to chew a gummy jelly on the right side and swallow freely. Maximal magnitude and duration of OVP at each chewing stroke and swallowing were analyzed. Results and discussion: Maximal magnitude of OVP at canine and right molar part (chewing side) was higher than that at left molar part (non-chewing side), and that at each measuring point increased during a few chewing strokes before swallowing. Maximal magnitude and duration of OVP during swallowing were 2.7+/–3.3+/–2.5+/–2.7 times higher than those during mastication. These results suggested that OVP during mastication might be activated for stage two transport of jelly bolus and should be extremely reinforced for pharyngeal swallowing. Our findings are might be useful for understanding pathophysiology of oro-pharyngeal dysphagia.

FRIDAY OCTOBER 24

10:00 – 11:00  Auditorium
Session 14   Free papers “Presbyphagia/ Complications/ Other”

OP14.1 OROPHARYNGEAL DYSPHAGIA OR LARYNGEAL ASPIRATION IN PARKINSON’S DISEASE: DEFINING HIGH-RISK GROUPS IN NEED OF SCREENING
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Introduction: During the course of Parkinson’s disease(PD) 50-100% of patients develop dysphagia. Clinical identification is often very late, after life-threatening complications occurred, such as aspiration pneumonia
or malnutrition. As previous studies showed correlations between dysphagia severity and clinical parameters, we used them to define high-risk groups for oropharyngeal dysphagia and laryngeal penetration/aspiration. Materials/Methods: Consecutively enrolled PD patients of a German movement disorders center underwent neurological examinations as well as clinical swallowing evaluations and FEES. They were allocated to 3 groups: no dysphagia(A), oropharyngeal dysphagia(B), and dysphagia with penetration/aspiration(C). Cutoff points for high-risk groups (A vs C, or A vs B+C) were determined from ROC curves for mod. Hoehn&Yahr stage, UPDRS—motor part, disease duration, age, drooling score scale, dysarthria score, and body mass index. Relative risks(RR) and 95%-confidence intervals(CI) were calculated. Results: The 77 patients (mean age 70.5±8.4, median HY3) were classified to Group A (21 patients), B (34), and C (22). Identified cutoffs were identical for both outcome groups (C:B+C). Risk of dysphagia was significantly increased for almost all parameters. Defining high-risk groups worked best with UPDRSIII ≥26 (C: RR 6.23; CI 1.55-25.02; B+C: 2.35, 1.37-4.05) and HY ≥4 (C: 4.29; 1.99-9.73; B+C: 1.62, 1.24-2.12). Discussion: Especially motor performance and HY stage were shown to be closely associated with dysphagia severity. In clinical practice patients with UPDRSIII ≥26 or HY ≥4 should be screened for dysphagia with a validated questionnaire¹ or undergo additional diagnostics. The presented cutoffs need further confirmation because of possible overfitting.

OP14.2 ELDER PEOPLE AWARENESS OF THEIR SWALLOWING IMPAIRMENT: THE CASE OF NURSING HOME RESIDENTS
D.M.S. Nogueira1; L.L. Lopes2; P.L. Ferreira3; E.A.R. Reis4 / 1Escola Superior de Saúde de Alcoitão, Portugal; 2TiscTEIUL, Portugal; 3Universidade de Coimbra, Portugal
Introduction: Swallowing Disorders in the elderly have been found to be strongly associated with poor health conditions and worst quality of life. Elder people who live in nursing homes are normally exposed to comorbid conditions that may cause dysphagia. Human and technological resources to evaluate dysphagia in institutionalized elder people are not easily to obtain. A better insight in the residents' awareness of symptoms of dysphagia (subjective dysphagia) may improve an early recognition of the problem and its treatment. Material and Methods: The aims of this study were to assess clinical symptoms of dysphagia in nursing home residents by means of a customized dysphagia screening tool (P-EAT -10) and the usefulness of this assessment to health care professionals in Portugal. Also intends to analyze the associations of subjective dysphagia with cognitive function and functional dependency. It's a cross-sectional study and data of 552 nursing home residents aged 65 years or older were included and analyzed. Subjective dysphagia was assessed by a resident’s response to the P-EAT-10 screening tool regarding their experiencing with swallowing problems. If a resident was not able to respond (e.g. residents with dementia or aphasia), the question was answered by the formal caregiver. Also the 3oz water swallow test was performed by a SLP. Several residents’ data were collected: gender, age, morbidity conditions, cognitive status (MMSE), functional dependency (Barthel index) and the body mass index. Results: Subjective dysphagia was strongly associated with the 3ozwater swallow test performance but a weak association was found with cognitive and functional status. Conclusions: As resources to assess dysphagia are scarce in nursing homes it seems justified to conclude that subjective symptoms are a relevant indicator of dysphagia. The P-EAT-10 may be useful in the detection of dysphagia when no other resources are available. Individual’s awareness of their own swallowing impairment presents an important aspect. The findings of the study indicate that when patients self-identify a swallowing problem, the SLP also identifies a problem, although not the same problem identified by the patient, with the same intensity or with the same manifestation.

OP14.3 EFFECTS OF VISCOSITY ON SWALLOW INITIATION AND BREATHING-SWALLOW PATTERN DURING EATING OF TWO-PHASE FOOD IN FRAIL ELDERLY INDIVIDUALS
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Introduction: When eating food containing both liquid and solid phases, the liquid component frequently flows into the hypopharynx while chewing the food. For liquid swallowing, viscosity is known to alter swallow initiation and the coordination between swallowing and breathing. The aim of this study was to test whether the initial viscosity of two-phase food would alter swallow initiation and breathing—swallowing coordination in elderly persons. Material and Methods: Fiberoptic endoscopic images of the pharynx were recorded while 19 elderly (mean 80 years) and 18 young persons (mean 27 years) ate 5 g of steamed rice, and 5 g of steamed rice with 3 ml of blue-dye water (two-phase food). Liquid viscosity for two-phase food was set at three levels by adding a thickening agent. Respiration was monitored concurrently with a plethysmograph. We analyzed the location of the leading edge and the respiratory phase at swallow initiation. Results: In the elderly group, regardless of viscosities, the leading edge often entered the hypopharynx during chewing the food. In the young group, most swallows (98%, 175/178 swallows) started during expiration or plateau after active expiration with all initial viscosities. In contrast, in the elderly, swallows started more during inspiration with thin two-phase (32%, 6/19 swallows), but with the other viscosities, most swallow started in expiration or plateau phase. Conclusion: With thin two-phase, the location of the leading edge of the food was not significantly differed between young and elderly individuals, but swallowing started more in inspiration in elderly person. Coordination between swallowing and breathing pattern during eating of food would decrease with aging, which may expose a risk of pre-swallow aspiration.

OP14.4 GENETIC DETERMINANTS OF SWALLOWING SYMPTOMS RELATED TO DYSPHAGIA IN OLDER HEALTHY INDIVIDUALS
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Introduction: Patients with swallowing difficulties (oro-pharyngeal dysphagia) caused by neurological damage (stroke, Parkinson’s disease, ageing) show different recovery patterns which may be caused by genetic determinants. The aim is to find an association between human genetic variations and swallowing impairments within the ageing cohort. Materials and methods: We performed case-control genome wide association study (GWAS) of self-reported swallowing symptoms related to dysphagia. The analysis included 555 community dwelling, unrelated, older adults (mean years of age = 81.4; SD = 5.349) with known phenotype and genetic information consisting of 512 806 single nucleotide polymorphisms (SNP). Gene-based association analysis of these traits was also conducted. The genetic data underwent quality control procedures prior to the study. This included analysis of population architecture using Multidimensional Scaling of the genome wide genotype data. Results: Analysed cohort showed European ancestry with no major population stratification. The results shown one genome wide significant SNP rs17601696 (P=4.83x10-8) from non-coding region of chromosome 10. Analyses of individual genes did not result in any genome-wide significant association. Discussion: SNP rs17601696 may have an impact in swallowing impairment among elderly individuals. The results require replication in an independent cohort with appropriate phenotype/genotype data. Presented GWAS results will be replicated in the human model study using Transcranial Magnetic Stimulation (TMS). Identified genetic loci may play a role of potential markers to predict individual’s outcome from swallowing impairments.

OP14.5 THE PREVALENCE OF DYSPHAGIA IN PATIENTS WITH COMMUNITY-ACQUIRED PNEUMONIA
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Introduction In Denmark (DK) there is limited focus on dysphagia among patients with community-acquired pneumonia (CAP). Dysphagia is a highly prevalent clinical finding in elderly patients with CAP. Consequences of dysphagia might be aspiration pneumonia, malnutrition, depression and social isolation. The aim of this study was to investigate the prevalence of dysphagia among inpatient patients with CAP in DK.

Materials and methods This cross-sectional study with longitudinal follow-up included patients (18 years+) hospitalised with CAP hospitalised at Vendsyssel Hospital, DK from September 1 2013 to March 31 2014. The patients were consecutively included and screened for dysphagia utilizing the volume-viscosity swallow test (V-VST). If the V-VST was positive the patients were tested with the Danish version of McGill Ingestive Skills Assessment. Demographic data, Modified Rankin Scale, Barthel20, CURB65, Charlson Comorbidity Index, BMI, dental care utilisation, oral hygiene and handgrip were assessed. Mortality during hospitalisation and mortality and rehospitalisation 30 days and 180 days after discharge were registered. Results A sample of 173 patients with CAP was recruited (45.1 % female, mean age 77.1 years). Dysphagia was present in 35.9% of the total sample, and in 38.9% amongst patients > 70 years. Patients with dysphagia were older; more of them were living in nursing homes and showed lower functional status. The CURB65 score and prevalence comorbidity was higher. Detailed data, and data on mortality and rehospitalisation will be presented at the congress. Discussion This study confirms a relative high prevalence in patients with CAP. We recommend screening for dysphagia in patients in the risk group to be a part of the clinical praxis in DK considering CAP and swallowing pressure with videofluoroscopy (VF) for swallowing using 3 mL of barium water and gelatin jelly as a test food. We measured the largest change of swallowing pressure in the hypopharynx and the upper esophageal sphincter (UES) during the several swallowing.

Results: There was a significant correlation between the age and the maximum swallowing water pressure in the UES (p=0.003, R=0.610). Significant correlations also observed between the maximum tongue pressure and the maximum swallowing water pressure in the UES (p=0.001, R=0.647) and between the maximum tongue pressure and the maximum swallowing jelly pressure in the UES (p=0.021, R=0.501). There was no significant correlation between the maximum swallowing pressure in the hypopharynx and the other data. Although no significant difference was observed, the maximum swallowing pressures in the UES (57.4 +/-21.2 mmHg) in sixteen patients who were able to take food by mouth were higher than the ones (42.3 +/-23.8 mmHg) in six tube-fed patients. Conclusion: These results suggest that DM1 patients are likely to lose the ability to lift the tongue tip and relax the UES as patients grow older. The reduced tongue and swallowing pressure may induce pharyngeal residue increasing the risk of aspiration and choking large pieces of solid food.

OP14.6 RELATIONSHIP BETWEEN TONGUE AND SWALLOWING PRESSURE IN PATIENTS WITH MYOTONIC DYSTROPHY TYPE 1 (DM1).
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Introduction: We reported the possibility that increase in pharyngeal residue made DM1 patients elevate hyoid bone longer in spite of reduced tongue pressure. This study aims to demonstrate the relationship between tongue and swallowing pressure in patients with myotonic dystrophy type 1 (DM1). Methods: Twenty-two DM1 patients (male 13, female 9, mean age 46.9 y.o.) were recruited and their types of diet were scored. They underwent separately measurements of tongue pressure and swallowing pressure with videofluoroscopy (VF) for swallowing using 3 mL of barium water and gelatin jelly as a test food. We measured the largest change of swallowing pressure in the hypopharynx and the upper esophageal sphincter (UES) during the several swallowing.

Results: There was a significant correlation between the age and the maximum swallowing water pressure in the UES (p=0.003, R=0.610). Significant correlations also observed between the maximum tongue pressure and the maximum swallowing water pressure in the UES (p=0.003, R=0.610) and between the maximum tongue pressure and the maximum swallowing jelly pressure in the UES (p=0.021, R=0.501). There was no significant correlation between the maximum swallowing pressure in the hypopharynx and the other data. Although no significant difference was observed, the maximum swallowing pressures in the UES (57.4 +/-21.2 mmHg) in sixteen patients who were able to take food by mouth were higher than the ones (42.3 +/-23.8 mmHg) in six tube-fed patients. Conclusion: These results suggest that DM1 patients are likely to lose the ability to lift the tongue tip and relax the UES as patients grow older. The reduced tongue and swallowing pressure may induce pharyngeal residue increasing the risk of aspiration and choking large pieces of solid food.
motor symptoms. However, effects of DBS on dysphagic and dysarthric symptoms are highly controversial. The aim of our study is to investigate the effects of DBS on dysarthric and dysphagic symptoms using clinical diagnostics as well as FEES and imaging methods. Materials and Methods: Data was collected from 7 patients suffering from idiopathic PD. All of them underwent a full neurological examination, clinical and fiberoptic evaluation of swallowing, surface electromyographic screening and an examination of dysarthric symptoms. Performance was investigated in two sessions: first when stimulation is switched on and secondly with stimulation switched off. Patients were on medication throughout both examinations. Results: Descriptive analysis indicates improvement of dysphagic symptoms in 4 patients and worsening in 3 patients with the stimulator switched off. Dysarthric symptoms tend to improve in all patients, particularly in speech intelligibility, with the stimulator switched off. Statistics as well as the analysis of sEMG data are currently evaluated. Conclusions: Data suggest that DBS has an effect on dysarthric as well as dysphagic symptoms. First results indicate that especially dysarthric symptoms worsen with DBS. Effects on dysphagic symptoms have to be analyzed by using further information on implant site. To conclude, DBS provides excellent result improving cardinal symptoms of PD. Nevertheless a specific evaluation of dysphagia as well as dysarthria seems to be necessary before and after DBS to preserve a good quality of life for patients with PD.

OP21.2 THE EFFECTS OF LEVODOPA ON SWALLOWING SAFETY, KINEMATICS AND HYOID BONE PEAK MEASUREMENTS IN PARKINSON’S DISEASE
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Recently, we investigated the effects of Levodopa on swallowing neuropsychology of people with Parkinson’s disease (pPD) (Michou et al, 2014). Three distinct groups were observed, namely: pPD with swallowing impairments both on- and off-Levodopa (SII), pPD with no swallowing impairments (NSI) and lastly, pPD with impairments only on-Levodopa (SII). Here, we explore the effects of Levodopa on swallowing parameters within and between groups. All participants (n=26, diagnosed with idiopathic PD; age 65+/9y; 10 men) were screened with videofluoroscopy (VFS) after being at least 12 hours off-Levodopa and 90-120 minutes following re-intake of Levodopa. The VFS protocol included 6 saliva, 6 thin liquid(60% w/vEZ-HD), 6 thick liquid(40%) swallows in randomised order. The off-line analysis included 7 durational swallowing parameters, 3 descriptive, hyoid peak measurements and penetration-aspiration (PA) scores. Differences in median values between groups were analysed with non-parametric tests with corrections for multiple comparisons. The PA score of the SII group increased for both liquid[p:0.043,(z:-2.1)] and puree swallows[p:0.017,(z:-2.3)], together with residue[p:0.05,(z:-1.3)] on-medication. The SII group experienced delayed swallowing response on-Levodopa[p:0.028,(z:-2.2)]. Moreover, the 2 groups with impairments were different during both medication-states (oral transit times, response time and airway closure). Our data contribute further to the evidence for the negative physiological effects of Levodopa. Different swallowing parameters contribute to symptomatology of different profiles of pPD. Further investigation is imperative to understand the level of adaptation of swallowing in pPD and how to promote swallowing safety.

OP21.3 DYSPHAGIA IN MULTIPLE SCLEROSIS: PREVALENCE, NATURE, AND ASSOCIATED RISK FACTORS
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Introduction: Prevalence rates of dysphagia in Multiple Sclerosis (MS) vary while the nature, extent and contributing factors remain unclear due to methodological weaknesses in study design and limited use of instrumentation. This study aims to determine the epidemiology of dysphagia in MS (prevalence, nature, extent and risk factors). Materials & Methods: 115 people with MS (60 % female, mean age 48.2 +/- 11.8 years, mean Expanded Disability Status Scale EDSS 4.7 +/- 2.4), with and without dysphagia were consecutively recruited from a neurology clinic as they presented for routine clinic visits. Presence and nature of dysphagia was determined using the Dysphagia in Multiple Sclerosis questionnaire (DY-MUS), 3 ounce water swallow test, clinical swallow evaluation (CSE) and videofluoroscopy (VFFS) rated with the Dysphagia Outcome and Severity Scale (DOSS) and the Penetration-Aspiration Scale. Neurological profile was quantified by the EDSS and the Kurtzke Functional Systems Scale. We used multivariate regression models to assess associations between dysphagia and a variety of clinical parameters. Results: Based on the results of VFFS 50% presented with dysphagia (oropharyngeal dysphagia and/or oesophageal motility abnormality). Of these, 82% had mild to mild/moderate dysphagia. During clinical testing, 55% reported a swallow problem, 48% failed the 3oz water test and 39% had dysphagia on CSE. Only gender (p<0.001) and time between 1st and 2nd relapse (p<0.005) were statistically significant risk factors for dysphagia in multivariate regression analysis. Conclusions: Prevalence rates are higher than previously documented. New risk factors are identified. Unrecognized pharyngeal and oesophageal motility abnormalities are apparent.

21.4 COUGH REFLEX TESTING IN POST-STROKE PATIENTS WITH OROPHARYNGEAL DYSPHAGIA
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Introduction: Oropharyngeal dysphagia (OD) is a severe condition in post-stroke patients (PSP). Silent aspirations (SA) without cough reflex are associated with higher risk of aspiration pneumonia (AP) in patients with OD. Aims To assess cough reflex in PSP with OD. Material and Methods: Swallowing function was assessed at 3 months after stroke using the volume-viscosity swallow test (V-VST). CRT was performed by nebulising citric acid in dilutions of increasing concentrations.
OP21.5 COORDINATION OF BREATHING AND SWALLOWING IN MYOTONIC DYSTROPHY TYPE 1 (DM1)

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Introduction: Coordination of breathing and swallowing in patients with neuromuscular diseases, including muscular dystrophy, can cause an alteration of this fine coordination mechanism. The aim of the study is to analyze coordination of swallowing and breathing in patients with myotonic dystrophy type 1 (DM1). Methods: Combined Fiberoptic Endoscopic Evaluation of Swallowing (FEES), respiratory phase and submental S-EMG recordings were analyzed in 15 patients with DM1. Spontaneous swallows during a 5 minutes recording with and without endoscopic control, voluntary dry swallows, single and sequential deglutition with thin liquid (5, 10, 50 ml) and semisolid bolus (5, 10 ml) were considered. For each swallow respiratory phases surrounding each swallow, duration of swallowing apnea and number of swallows/bolus were measured. The severity of swallowing dysfunction was staged using the Penetration Aspiration Scale (PAS) and the Dysphagia Outcome and Severity Scale (D OSS). For each patient respiratory parameters were collected. Results: No difference were found in apnea duration and number of swallows measured with and without endoscopic control (p > 0.05). In 74% of swallows deglutition was followed by exhalation phase. Percentage of inhalation-deglutition-inhalation pattern depended on viscosity and decreased with semisolid bolus. Mean swallowing apnea duration was 2.66 sec and depended on bolus viscosity and size. Mean number of swallow/bolus was 2.8. A strong correlation between FVC/FEV1 and swallowing apnea duration was found (r=0.881/r=0.952).

Conclusions: Many parameters describing coordination of swallowing and breathing in patient with DM1 are modified compared to healthy adults.

OP21.6 RESPIRATORY-SWALLOW PHASE PATTERNS AND SWALLOW APNEA DURATION IN INDIVIDUALS WITH MULTIPLE SCLEROSIS AND DYSPHAGIA

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Introduction: Coordination between respiration and swallowing may be disrupted in neurological disease, influencing the safety and efficiency of swallowing. In people with multiple sclerosis (MS) with respiratory dysfunction and dysphagia this combination of impairments has the potential to disrupt respiratory-swallowing interaction. To date, limited studies have evaluated the respiratory-swallowing relationship in this population. This pilot study examines the nature of respiratory-swallowing coordination in individuals with MS and dysphagia.

Materials & Methods: Respiratory-swallowing events of twelve (n=12) participants with MS and dysphagia were evaluated using simultaneous videofluoroscopy, nasal cannula, respiratory inductance plethysmography, and surface electromyography. Data were collected across 5ml, 10ml and sip thin liquid bolus volumes and were analysed for types of respiratory swallow phase patterns (RSPPs), swallow apnoea duration (SAD), and penetration/aspiration (PA).

Results: Alterations in respiratory-swallow coordination in individuals with MS and dysphagia. Penetration occurred in non-normal RSPPs. Seventy five percent of participants had SADs of less than 1 second across all volumes, and average SADs were shortest for 5ml and longest for 10ml volumes. SAD was significantly longer in non-normal RSPPs in the 5ml condition, and displayed a similar trend for 10ml volume. Males, younger adults, and those with relapsing-remitting MS produced longer SADs for all volumes.

Conclusion: Alterations in respiratory-swallow coordination can present in individuals with MS and dysphagia, yielding an increased risk of penetration. Preliminary findings support previous research regarding disruption to the normally coordinated relationship of respiration and swallowing in the presence of disease.
OP26.1 COMPARISON OF THE PREDICTIVE VALUE OF FLEXIBLE ENDOSCOPIC EVALUATION OF SWALLOWING WITH SENSORY TESTING (FEESST) AND CAPSAICIN INHALATION TEST (CIT) FOR SILENT ASPIRATION IN DOPHARYNGEAL DYSPHAGIA.

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This study is a pilot study regarding the clinical interest of the both tests as prognosis factors of pulmonary decancellation in oropharyngeal dysphagia. These two tests assess the protective reflexes of the airway. But they use two different stimuli applied at different levels of the airway. Our assumption is that the agreement between the two tests is low because they assess two different mechanisms. The main goal is to compare the result of the FEEST and the CIT, the both being performed by patients with swallowing disorders. 46 patients coming in the hospital for swallowing disorders, were included on the criteria of having aspirations at the video fluoroscopy, it also significantly correlates with a subjective clinical measure of feeding competency.

OP26.2 OBSERVER RELIABILITY FOR MEASUREMENTS IN FEES

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Introduction. The interpretation of fiberoptic endoscopic evaluation of swallowing (FEES) exams is based on visual judgment and might be influenced by several factors. The aim of this study is to compare (1) the observer reliability for measurements in FEES exams of patients with dysphagia of head and neck oncological and neurological origin; and (2) the raters’ behavior during independent versus consensus panel rating. Material and Methods. Two raters scored 360 swallows from 60 dysphagic patients, in randomized order. Five visuo perceptual ordinal variables were analyzed. The rater behavior was divided in two separate tasks: independent versus consensus panel rating. Observer reliability per task was assessed using the linear weighted kappa coefficient. The effect of dysphagia etiology, bolus consistency, and rater on reliability scores was studied using a Bayesian multilevel model. Results. Intra- and interrater reliability for the majority of FEES measurements ranged from 0.69 to 1 and 0.58 to 0.82, respectively. Dysphagia etiology did not have a significant effect on observer reliability. However, thin liquid bolus consistency showed a significant effect on reliability scores resulting in decreased interrater reliability. Consensus panel rating reached higher levels of observer reliability compared to independent rating. Conclusions. Interrater reliability for measurements in FEES was not significantly influenced by dysphagia etiology, bolus consistency, and rater. Inter rater reliability was significantly influenced by bolus consistency. The reliability for measurements might be improved by an optimized design of each category of the FEES variables’ scale and a thorough preexperimental training process for the raters in particular for thin liquids.

OP26.3 PRESSURE-FLOW ANALYSIS CORRELATES WITH CLINICAL MEASURES OF PAEDIATRIC DYSPHAGIA

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Introduction: Dysphagia is extremely common in the pediatric population. A new technique, called Pressure-Flow Analysis (PFA), detects swallowing pressures and bolus flow dynamics, allowing for specific measures of swallow mechanisms. PFA uses a catheter-based procedure able to capture pharyngeal swallow function. Pressure-flow metrics and a Swallow Risk Index (SRI) are derived. This study aimed to correlate PFA with a standardised clinical assessment, the Dysphagia Disorders Survey (DDS). We hypothesised that children with an elevated DDS score would demonstrate an elevated SRI. METHODS: High Resolution Impedance Manometry was performed in 48 patients (18males; 1-17yrs) with oro-pharyngeal dysphagia. Liquid swallows were recorded using a solid state pressure and impedance catheter. PFA was performed using MATLAB-based software (AIMplot) to derive Pressure-Flow Metrics and the SRI. A clinical mealtime assessment (DDS) was performed by a speech pathologist separately from the HRIM procedure. The relationship between DDS scores and the SRI were established using Kruskall-Wallis independent samples test and Spearman’s Rho statistical dependence test. RESULTS: DDS scores were highest in patients with neurological disorders (Kruskall-Wallis p=0.002). There was a significant correlation between raised DDS scores and SRI (Spearman’s r = 0.553). Patients with a DDS score above the 90th percentile showed statistically significant elevation of the SRI compared to all other patients (Kruskall-Wallis p<0.001). DISCUSSION: This data demonstrates that objective Pressure-Flow Analysis is not only a predictor of aspiration risk as previously demonstrated with videofluoroscopy, it also significantly correlates with a subjective clinical measure of feeding competency.

OP26.4 ENDOLIP FLIP REPRODUCTIBLY AND ACCURATELY MEASURE PHARYNGOESOPHAGEAL JUNCTION DIAMETER AND DETECTS CHANGES INDUCED BY ENDOSCOPIC DILATATION

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Introduction: Late dysphagia following head and neck cancer treatment is frequently related to pharyngoesophageal junction (PEJ) fibrotic stenosis, and is associated with a significant morbidity and mortality. Cricopharyngeal dilatation is used as treatment, however objective
OP26.5 ASSESSMENT OF TONGUE PRESSURE AND LARYNGEAL MOVEMENT DURING SWALLOWING IN PARKINSON’S DISEASE PATIENTS

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Aim of the study was to assess the repeatability, accuracy and sensitivity to within-subject changes of EndoFLIP measurements following intervention.

Materials & Methods: Triplicate distensions with EndoFLIP (8cm, 0-50ml at 60ml/min) were performed in the PEJ before and after endoscopic Savary-Gilliard dilatation in 4 dysphagic patients (2 post H&N radiotherapy, 2 laryngectomees). Subjects were under conscious sedation in left-lateral position. Pre-dilation diameter of the narrowest point of the PEJ during maximum distension was compared to minimum diameter measured on fluoroscopy in the lateral plane in 3x5ml swallows.

Results: Repeated measures of the narrowest PEJ diameter within-subjects had very low coefficient of variation of 0.03. Narrowest diameters measured by fluoroscopy and EndoFLIP were very strongly correlated (ρr(0.95), p<0.05) (Fig 1). Following Savary-Gilliard dilatation the cross-sectional area measured by EndoFLIP increased in all patients (pre: 12.5mm² ±4.7, post: 121.8mm² ±32.4 (mean±SD), p<0.05) (Fig 2).

Conclusion: Diameter of PEJ stenosis gauged by EndoFLIP has high repeatability, accuracy and is sensitive to diameter changes following dilatation. These features make it a useful radiation-free method to objectively assess the response immediately after endoscopic dilatation.

OP26.6 SPECIFIC ENDOSCOPIC PROTOCOLS TO EVALUATE OROPHARYNGEAL SWALLOWING IN DIFFERENT NEUROLOGICAL DISORDERS

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Introduction: Neurological disorders such as stroke or Parkinson’s disease (PD) are the most common causes of dysphagia. Because of the clinical heterogeneity of neurological disorders, the resulting forms of neurogenic dysphagia also demonstrate many differences in their phenomenology and respective treatment approaches. Therefore, specific protocols for flexible endoscopic evaluation of swallowing (FEES) may be useful to adequately assess and manage these different forms of neurogenic dysphagia. Material and Methods: Throughout the last years, we developed four specific endoscopic protocols for a standardized assessment of dysphagia caused by different neurological disorders: Fiberoptic endoscopic dysphagia severity scale for acute stroke patients (FEDSS), FEES-Tensilon-test (FTT), FEES-Levodopa-test (FLT) and a standardized endoscopic decannulation protocol for critically ill neurological patients on the intensive care unit. Here, we discuss the available data regarding these protocols and show preliminary results of recently finished validation studies. Results: The FEDSS reliably grades dysphagia of acute stroke patients into six severity codes enabling the clinician to deduce adequate protective and rehabilitation measures on the stroke unit. The initial FEDSS has been shown to be a strong and independent predictor of the outcome of acute stroke patients after 3 months. The FTT may be a very helpful tool to uncover myasthenic dysphagia in unclear cases as well as to differentiate between myasthenic
and cholinergic crisis and to titrate anticholinesterase therapy in patients with already confirmed myasthenia gravis. The FLT is useful to assess the levodopa responsiveness of dysphagia in PD patients by comparing swallowing function in the off state and the on state condition. The endoscopic decannulation protocol has been shown to allow for a faster but nonetheless safe decannulation of tracheotomized neurological patients compared to a conventional clinical swallowing evaluation. Discussion: The presented endoscopic protocols may help neurologists and other disciplines involved in the management of neurogenic dysphagia to uncover the specific nature of swallowing dysfunction and to address adequate treatment purposes specifically related to different neurological disorders.

**OP26.7 EFFECT OF CHEMORADIOTHERAPY (CRT) ON MAXIMUM ISOMETRIC TONGUE PRESSURES (MIP) IN HEAD AND NECK CANCER (HNC) PATIENTS DURING AND IMMEDIATELY FOLLOWING TREATMENT -- PRELIMINARY DATA**

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**OP26.8 LONG-TERM SWALLOWING AFTER CHEMORADIOTHERAPY: A PROSPECTIVE STUDY OF FUNCTIONAL AND PATIENT-REPORTED CHANGES OVER TIME**

OP32.1 PHARYNGEAL ELECTRICAL STIMULATION CAN ENHANCE SWALLOW PERFORMANCE BY MODULATING CORTICAL SWALLOWING NETWORK ACTIVATION
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Introduction: Pharyngeal electrical stimulation (PES) is a novel intervention to promote pharyngeal motor cortex plasticity to aid dysphagia rehabilitation. In this study we evaluate the effect of PES on cortical swallowing network activity and associated changes in swallowing performance. Methods: A pair of bipolar ring electrodes mounted on an intraluminal catheter was positioned in the pharynx. In a randomized, crossover study design 10 minutes of real (0.2-ms pulses, 5 Hz, 280 V, stimulation intensity at 75% of maximum tolerated threshold) or sham stimulation (N=8). Participants performed the MM during 3 phases of this study: 1. pre-training (4 trials, no stimulation), 2. training (15 trials, with stimulation), 3. post-training (4 trials, no stimulation). Throughout, instructions were to hold the MM as long as possible. Videofluoroscopy recorded pre- and post-training MM performance and was used to determine LVC duration during these two phases. Results: Mixed models analysis revealed a significant training effect (p=0.001). Compared to pre-training, post-training LVC durations only increased with sham (+5.5 sec, p=0.002) and anodal stimulation (+5.3 sec, p=0.028), but were not different from one another. However, no significant increase was found after training with cathodal stimulation (+2.2 sec, p=1.00). Conclusion: Inhibitory cathodal stimulation during MM training eliminated positive training effects. Anodal stimulation may not have enhanced MM training because healthy adults may have reached their ceiling performance, but it could be effective in dysphagic patients.

OP32.2 EFFECTS OF CORTICAL STIMULATION ON SWALLOWING MANEUVER PERFORMANCE
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Introduction: Cortical activity increased during swallowing maneuvers compared to swallowing without a therapeutic technique (Peck et al 2010). We have shown that the duration of laryngeal vestibule closure (LVC) can be increased during a swallowing maneuver (Macrae et al 2014). However, it is not clear whether non-invasive brain stimulation can impact LVC duration during swallowing maneuver performance. The goal of this study was to determine whether transcranial direct current stimulation (tDCS) modulates LVC duration during Mendelsohn Maneuver (MM) performance in healthy adults. Materials & Methods: Each subject (N=22) received one form of tDCS, including excitatory anodal stimulation (N=7), sham stimulation (N=7), or inhibitory cathodal stimulation (N=8). Participants performed the MM during 3 phases of this study: 1. pre-training (4 trials, no stimulation), 2. training (15 trials, with stimulation), 3. post-training (4 trials, no stimulation). Mixed models analysis revealed a significant training effect (p<0.001). Compared to pre-training, post-training LVC durations only increased with sham (+5.5 sec, p=0.002) and anodal stimulation (+5.3 sec, p=0.028), but were not different from one another. However, no significant increase was found after training with cathodal stimulation (+2.2 sec, p=1.00). Conclusion: Inhibitory cathodal stimulation during MM training eliminated positive training effects. Anodal stimulation may not have enhanced MM training because healthy adults may have reached their ceiling performance, but it could be effective in dysphagic patients.

OP32.3 SWALLOWING OUTCOMES FOLLOWING SKILL VERSUS STRENGTH TRAINING IN HEALTHY PARTICIPANTS
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Introduction: The motor-learning literature presents a clear distinction between applications and effects of skill- and strength-training approaches for rehabilitation of limb movement. In contrast to limb-movement rehabilitation, swallowing rehabilitation consists mainly of strength training, although the pathophysiological basis for dysphagia is not always weakness. The current study compared the effects of a novel skill-training program to a more traditional strength-training program on measures of central and peripheral change in swallowing. Materials: Custom-designed swallowing training software was utilized. Transcranial magnetic stimulation was used to measure changes in motor evoked potentials of submental muscles, and pharyngeal manometry was used to measure changes in pharyngeal and upper esophageal sphincter pressures. Methods: Forty healthy participants were randomly allocated to skill or strength training groups. Training comprised 10 sessions, each 1 hour long, over 2 weeks. The training software provided immediate and delayed visual biofeedback from the submental muscles. Outcome measures were collected pre- and post-training. Results: A trend toward larger increases in MEP magnitude with strength compared to skill training was seen (p = 0.056, d = 0.78).
There was no main effect of either training approach on swallowing biomechanics although skill training with delayed feedback produced a decrease in mid-pharyngeal pressure compared to immediate feedback ($p = 0.005$, $d = 1.62$). Discussion: Swallowing function is already optimal in healthy subjects, so no improvement in swallowing function was seen nor expected following strength or skill training. Conversely, this Phase I study has revealed a possible adverse effect of delayed-feedback skill training.

OP32.4 PHARYNGEAL ELECTRICAL STIMULATION: CLINICAL PRACTICABILITY, INTENSITIES, COMPLICATIONS AND FUNCTIONAL OUTCOME

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Introduction: Surface pharyngeal electrical stimulation (PES) was proposed to enhance cortical plasticity and swallowing function in dysphagic patients (Fraser et al. 2002). Previous studies show positive outcomes but only included a limited number of patients (Jayasekeran et al. 2010; Michou et al. 2014). Our goals were to describe clinical practicability and functional outcomes of PES in a larger sample of patients.

Method: Retrospective analysis of PES in 151 patients suffering from neurogenic dysphagia which have been stimulated from 2009 to 2013. A catheter was inserted transnasally and electrical stimulation was given to the hypopharynx on three consecutive days using a bipolar electrode (5Hz for 10 minutes at 75% of tolerated intensity). Outcome variables were Bogenhausener Dysphagie-Score (BODS1 relating to tracheostomy patients) and Functional Outcomes of PES in a larger sample of patients. Main outcomes were maximal respiratory pressures (PImax and PEmax), Penetration-Aspiration Scale of Dysphagia and the Volume-Viscosity Swallow Test (V-VST). P=0.05 was considered as statistically significant. Results: Fifty-eight patients meet inclusion criteria. No differences in basal characteristics were found among the groups. Only significant improvement in PAS between pre and post VFS (5.2±2.32 vs 3.9±2.3; $p=0.03$), in Group B the improvement was clear but not significant. Conclusions: 1) Ten days treatment with capsaicin was effective (4.8±2.8 vs. 2.4±2.55; $p=0.06$). Initially, all patients had impaired oropharyngeal motor response with a laryngeal vestibule closure time (LVCT) of 474.3±185 ms. In Group B, we observed an improvement in LVCT between pre and post VFS (5.2±2.32 vs 2.83±1.17; $p=0.03$), in Group B the improvement was clear but not significant. 2) 10 days treatment with capsaicin was effective in 60% of patients, significantly reducing impaired safety of swallow; 2) 10 days treatment with TES was effective in 45.5% of patients and showed a clear improvement in LVCT and of ≥2 points in the PAS. We need more patients to achieve greater statistical significance.

OP32.5 EFFECTS OF NEUROMUSCULAR ELECTROSTIMULATION AND RESPIRATORY MUSCLE TRAINING IN ACUTE/SUBACUTE DYSPHAGIC STROKE PATIENTS. RETURNUS: A RANDOMIZED CONTROL TRIAL

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Introduction: Oropharyngeal dysphagia is highly prevalent in stroke patients. Respiratory muscle training (RMT) and Neuromuscular Electrostimulation (NMES) have been suggested as innovative therapeutic strategies for the management of swallowing disorders in stroke. The purpose of this study was to evaluate the effectiveness of a 3-week NMES combined with RMT in subacute dysphagic stroke patients. Material & Methods: Prospective, double-blind, randomized controlled trial was carried out in subacute dysphagic patients. Patients were randomly assigned to: 1) NMES, 2) RMT, 3) NMES + RMT, and 4) no NMES no RMT. All patients followed usual swallowing therapies conducted by a swallowing therapist. Main outcomes were maximal respiratory pressures (PImax and PEmax), Penetration-Aspiration Scale of Dysphagia and the Volume-Viscosity Swallow Test (V-VST). A p-value <0.05 was considered as statistically significant. Results: Seventy-eight patients meet inclusion criteria. No differences in basal characteristics were found among the groups. Only patients in the RMT group showed a significant improvement in security signs at discharge in the pharyngeal phase of swallowing ($p=0.024$). Both inspiratory and expiratory strength had a significant improvement in the RMT and NMES/RMT samples. No adverse effects occurred during the intervention. Conclusion: A 3-week RMT is shown to be an effective, feasible and safe tool to improve weakness of inspiratory and expiratory muscles and pharyngeal security signs in swallowing. Acute/Subacute Stroke population seemed not adequate as a target population.

OP32.6 RANDOMIZED CONTROLLED CLINICAL STUDY TO ASSESS THE EFFICACY OF INCREASING SENSORIAL STIMULI AS A THERAPEUTIC STRATEGY IN THE TREATMENT OF OLDER PATIENTS WITH OROPHARYNGEAL DYSPHAGIA.

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Introduction: Oropharyngeal dysphagia (OD) is a prevalent swallowing disorder among older people. Treatment is based on fluid adaptation, postures and manoeuvres to compensate efficacy and safety impairments. New treatments based on sensorial stimulation have proved effective in acute studies but prolonged treatment has not been studied yet. Our aim is to study the effect of two chronic treatments on OD. Material & methods: 21 older patients (≥70yr) were studied with videofluoroscopy (pre + post-treatment) and randomized into 2 10-day treatment groups: Group A) stimulation of TRPV1 receptors with a natural agonist (capsaicin 1*10-5M); Group B) transcutaneous electrical stimulation (TES) with the Intelect VitalStim stimulator (biphasic, 300 μs, 80Hz). Results: Mean age of participants was 79.9±5.1 yr. Patients were classified according to treatment response (improvement ≥1 on the penetration-aspiration scale -PAS-). There were 60% (n=10) responders in Group A and 45.5% (n=11) in Group B. Those from Group A (capsaicin) showed significant improvement in PAS between pre and post VFS (5.3±2.32 vs 2.83±1.17; P=0.03), in Group B the improvement was clear but not significant (4.8±2.8 vs. 2.4±2.55; P=0.06). Initially, all patients had impaired oropharyngeal motor response with a laryngeal vestibule closure time (LVCT) of 474.3±185 ms. In Group B, we observed an improvement in LVCT between pre and post VFS (5.45±210.4 ms vs 374.18±168.01 ms; P=0.08). Conclusions: 1) Ten days treatment with capsaicin was effective in 60% of patients, significantly reducing impaired safety of swallow; 2) 10 days treatment with TES was effective in 45.5% of patients and showed a clear improvement in LVCT and of ≥2 points in the PAS. We need more patients to achieve greater statistical significance.
PPA2. FURTHER VALIDATION OF THE DANISH VERSION OF THE MCGILL INGESTIVE SKILLS ASSESSMENT (MISA-DK): RASCH ANALYSIS

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Introduction: The McGill Ingestive Skill Assessment (MISA) for measuring dysphagic patients functional performance during meals has been previously translated into Danish -- the Danish McGill Ingestive Skill Assessment (MISA-DK) and this translated version validated. However, issues about the construct validity of the scale had been raised. Therefore, this study aims to further validate and revise the MISA-DK using Rasch analysis, which provides the means to evaluate and improve how a rating scale functions as measurement of a particular underlying construct of interest to the clinician; e.g. ingestive skills ability. Material & Methods: An extended Rasch analysis was performed on data from a former MISA-DK validation study, which resulted in revisions to the scale. The revised MISA-DK was then tested using 102 video-recordings of geriatric patients’ ingestive skill performance, and the data from the scale were examined using a second Rasch analysis. Results: Initially, two of the six proposed subscales with 13 items of the original 43 item MISA-DK failed to fit the Rasch model, and were removed. It was also necessary to revise one item due to differential item functioning and to develop additional items as its reliability was too low. A second Rasch analysis of the revised 36 item MISA-DK with four subscales showed fit to the Rasch model after adjusting local item dependence throughout the scale. Conclusion: A revised MISA-DK demonstrated satisfactory construct validity when measured by the Rasch model. This allows for summation of item scores and provides objective measures of dysphagic patients’ ingestive skills ability. As local item dependence appeared to be a feature of the scale, the application of more complex Rasch models is warranted for further validation.

PPA3. PREDICTORS OF SWALLOWING ABILITY AFTER STROKE: A RETROSPECTIVE COHORT STUDY

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Introduction: Dysphagia is a common problem after stroke and has been identified as a major cause of pneumonia. Therefore, identifying predictors of swallowing ability are important to reduce complications in patients after an acute stroke. The purpose of this study was to identify factors that predict swallowing ability at discharge in patients who were admitted with an acute stroke. Materials and Methods: We recruited consecutive patients who were admitted to our hospital from April 2011 to March 2013 after an acute stroke. The predictor variables were age, water swallowing test (WST), repetitive saliva swallowing test (RSST), and Mann Assessment of Swallowing Ability (MASA). The outcome variables were type and amount of oral intake at discharge. These variables were obtained from retrospective medical record review. Receiver operating characteristic (ROC) curve was used to identify significant correlations between the predictor and the outcome variables. Results: We enrolled 159 patients with a mean age of 74.0 years (SD=11.5). Of the 159 patients enrolled, 13 (8.2%) were unable to take sufficient food orally at discharge. The area under the ROC curve was 0.620 for age (p=0.151), 0.750 for WST (p=0.003), 0.721 for RSST (p=0.011), and 0.909 for MASA (p<0.001). Conclusions: Three factors were identified as significant predictors of swallowing ability. Among these three factors, MASA had the highest predictive value. Multifactorial evaluation is needed to predict future swallowing ability. We intend to develop accurate and simple predictive models in future studies.

PPA4. VALIDITY AND RELIABILITY OF THE EUROPEAN PORTUGUESE EATING ASSESSMENT TOOL (P-EAT10)

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Introduction Dysphagia is often unrecognized and sub diagnosed by clinicians, other health care professionals and nursing home staff, being frequently unreported by the elderly and even by patients with etiological background that may cause dysphagia. It’s important to apply assessment tools which evaluate the self-perception of swallowing disorders. Material and Methods The present study was to evaluate the
validity and reliability of the European Portuguese EAT-10 (P-EAT10). The investigation consisted of 4 phases: 1) item generation, 2) internal consistency and reliability analysis 3) normative data generation 4) Validity analysis. A total of 527 surveys was administered, included symptomatic and asymptomatic subjects. Internal consistency was assessed with the Cronbach alpha. Test-retest reliability was evaluated with the Pearson correlation coefficient and the intraclass correlation coefficient. Construct validity was assessed through the comparison to the EQ-5D. Results and Discussion The internal consistency (Cronbach alpha) of the final instrument was 0.952. The test-retest correlation was obtained from two measured 1-week apart, performed on 30 patients, 76.7% female and with a mean age of 89.9 +/-10.1 years. At last, EAT-10 index was compared to the EQ-5D, both indices had a significant correlation (r=0.538). P-EAT-10 has proven to be reliable, valid and to have internal consistency.

PPA6. TONGUE PRESSURE, BITE FORCE AND SWALLOWING IN ADOLESCENTS
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Introduction: Adequate tongue pressure is essential for efficient oropharyngeal swallowing and bite force is especially relevant during mastication. Nevertheless, research in adolescence population is scarce. The aim of this study was to analyse the correlation between tongue pressure, bite force and swallowing in adolescents. Material and Methods: 100 Brazilian adolescents (mean age = 14.68 +/- 0.8 years), 70 males and 30 females with no self-reported health complaints participated. They were instructed to drink 100 mL of water (swallow volume: 100mL/number of swallows; swallow capacity: 100mL/time to swallow the overall volume; swallow velocity: time to swallow the overall volume/number of swallows), to press the tongue against the palate using the Iowa Oral Performance Instrument (IOPI)® (tongue pressure and tongue endurance) and bite a mandibular strength dynamometer (EMG System Brasil®) with maximum effort. For statistical analysis, student T-test and Pearson correlation were used. The level of significance was 5%. Results and Discussion: The means of VAS for self-assessment were 56 +/-28.60 for SCV, 38.33 +/- 34.06 for SC and 12.38 +/- 25.73 for NC. There were significant differences between SCV x NC (p<0.001) and SC x NC (p=0.010). The means of VAS for self-assessment did not differ (p=0.186) between patients with hypothyroidism (31.00 +/- 32.60) or thyroid nodules (44.08 +/- 35.03). Self-assessment of swallowing function was negative in women with benign thyroid disease, especially if they have had swallowing complaints associated with voice complaints. Hypothyroidism and thyroid nodules are known risk factors for voice disorders but the swallowing function is not well studied in these health conditions. The results of this study suggest that clinicians and researchers should give more attention to these complaints.
PPA8. RELIABILITY EVIDENCE OF THE BRAZILIAN PORTUGUESE VERSION OF NORTHWESTERN DYSPHAGIA PATIENT CHECK SHEET: PRELIMINARY RESULTS
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Introduction: The Northwestern Dysphagia Patient Check Sheet (NDPCS) is a quick evaluation protocol for oropharyngeal dysphagia developed by American researchers. The cross-culture-adapted Brazilian version is already published and the validation process is in progress. In this study, we present the preliminary results of the reliability evidence of the Brazilian Portuguese version of NDPCS. Material and Methods: a hundred elderly volunteers (mean age = 72.08 +/- 8.0 years) of both sexes (22 males and 78 females) participated in the study (evidence of internal consistency). Twenty seven volunteers from this sample participated in the test-retest phase, with an interval of seven to fifteen days between evaluations (evidence of temporal stability). For statistical analysis, it was used Cronbach’s alpha to verify internal consistency and Kappa coefficient to test agreement between evaluations. The confidence interval was 95%. Results and Discussion: Cronbach’s alpha value was 0.754, above the standard value of 0.7. Meanwhile, kappa coefficients were not yet consistent because only ten items show variability between evaluations and allows calculation. Kappa’s coefficients comes from 0.17 (weak) to 1.0 (excellent), which means great homogeneity in temporal stability of the items. At this time, the cross-cultural adapted Brazilian Portuguese version of Northwestern Dysphagia Patient Check Sheet shows internal consistency, but not a great stability. The author’s believe that this result is due to the reduced number of test-retest evaluations and will increase the sample to confirm or reject these results.

PPA9. DEVELOPMENT OF THE MASTICATION OBSERVATION AND EVALUATION (MOE) INSTRUMENT
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Introduction The Mastication Observation and Evaluation (MOE) instrument was developed to allow objective assessment of a child’s mastication process. It contains 14 items and was developed over three Delphi rounds. The present study concerns the further development of the MOE using the COSMIN (Consensus based Standard for the Selection of Measurement Instruments) and investigated the instrument’s internal consistency, inter-observer reliability, construct validity and floor and ceiling effects. Materials & Methods Consumption of three bites of bread and biscuit was evaluated using the MOE. Data of 59 healthy children (6 - 68 mths) and 38 children (bread) and 37 children (biscuit) with cerebral palsy (24 - 72 mths) were used. Results Four items were excluded before analysis due to zero variance. Principal Components Analysis showed one factor with 8 items. Internal consistency was >0.70 (Cronbach’s alpha) for both food consistencies and for both groups of children. Inter-observer reliability varied from 0.51 to 0.98 (weighted Gwet’s agreement coefficient). The total MOE scores for both groups showed normal distribution for the population. There were no floor or ceiling effects. Conclusion The revised MOE now contains 8 items that (a) have a consistent concept for mastication and can be scored on a 4-point scale with sufficient reliability and (b) are sensitive to stages of chewing development in young children. The removed items are retained as part of a criterion referenced list within the MOE.

PPA10. OUTCOME OF THE FUNCTIONAL ENDOSCOPIC EVALUATION OF SWALLOWING IN INFANTS WITH FEEDING DISORDERS
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Introduction: The importance of the diagnostic and therapy of feeding disorders (FD) in infants has been recognized in the last years. Still, it is challenging for every interdisciplinary team. Especially, there are still inconsistencies in classification and use of terminology in FD. In German-speaking countries the implementation of the DC 0-3R is widely spread (mainly according to Chatoor). Besides these, there are less specific ICD/WHO-diagnoses. As for all psychiatric disorders, the presence of organic problems must be clarified. Materials and Methods: Infants with severe FD are seen in an interdisciplinary team under the special guidance of the department for child and adolescence psychiatry, psychotherapy and psychosomatic. The functional endoscopic evaluation of swallowing (FEES) is part of the diagnostic work-up. 27 infants (age: 7-41 months; median: 18 months) with FD were seen in the section of phoniatrics for a FEES. Results: 22/27 infants had additional complex diseases (8 chromosome anomalies, 5 craniofacial malformations, 4 operated esophageal atresias, 3 premature births, 3 complex heart failures). The flexible laryngoscopy was performed in all children: in 6/27, we found anatomical anomalies that were not known (3 gastric laryngitis, 1 oedema of the vocal folds, 1 unilateral choanal stenosis, 1 pronounced adenoid hyperplasia). In 26/27 children, we performed the FEES. 5/26 infants showed an oropharyngeal dysphagia. Discussion: So our experience showed, the FEES and the included laryngoscopy is a good and reliable tool in the diagnostic work-up in children with FD, especially in children with complex diseases in addition to FD.

PTA1. EFFICACY OF MANIPAL MANUAL FOR SWALLOWING ASSESSMENT (MMSA) IN THE IDENTIFICATION OF ASPIRATION
J. Bhat; R. Balasubramanium / Manipal University, India
Introduction: There are few published clinical dysphagia assessment tools that provide detailed assessment of swallowing. One of the tool which has been psychometrically validated and standardized for the Indian population is Manipal Manual for Swallowing Assessment (MMSA) which involves the assessment of structure, sensory and motor functions along with trial feed. This test is used in the present study to check for its efficacy in the identification of aspiration. Materials and Methods: Sensitivity and specificity of MMSA for the identification of aspiration was checked by administering it on 25 mechanical & 25 neurogenic...
individuals with dysphagia and compared with the videofluoroscopic results. Results: Results revealed that all the individuals with dysphagia exhibited increased mean values in various components of MMSA. It was also observed that 77% of the individuals with aspiration were actually aspirators, whereas 67% of the predicted individuals with no aspiration were actually the non aspirators and hence this test can be used to identify individuals with aspiration with overall efficiency of 72%. Discussion: The results of the present study indicated that the protocol is sensitive in the identification of aspiration in individuals with mechanical and neurogenic dysphagia. Apart from the identification of aspiration, this test is also effective in characterizing impairments in oral preparatory, oral transport and pharyngeal phase of swallowing. It was concluded that administering this protocol to all types of dysphagia is appropriate to characterize the swallowing ability and disability with the successful identification of aspiration 77% of the time.

PTA4. CAN MANO-VIDEENDOSCOPY SUBSTITUTE FOR VIDEOFLUOROGRAPHY IN EVALUATION OF UPPER ESOPHAGEAL SPHINCTER FUNCTION? T. Karaho; T. Saloh; J. Nakajima; T. Nakayama; N. Kohno / 1Department of Otolaryngology, School of Medicine, Kyorin University, Japan; 2Department of Otolaryngology, School of Medicine, Kyorin University, Japan; 3Department of Oral and Maxillofacial Surgery, National Defense Medical College, Japan; 4Japan Welfare Education College, Japan; 5Department of Otolaryngology, School of Medicine, Kyorin University, Japan

Introduction: Video Endoscopic Swallowing Study (VESS), one of the standard swallowing examination, has the disadvantage of not allowing evaluation of the esophageal stage. The information about the upper esophageal sphincter (UES) function is very important for the subsequent treatment strategy. Manovideendoscopy (MVE) is the manometry technique with endoscopically confirming the pressure catheter without radiation exposure. The objective of this study was to investigate the possibility of replacing videofluorography with MVE as a test to evaluate the function of the UES. [Study Design] Retrospective study of 52 patients with dysphagia. [Methods] All patients were underwent both MVE and videofluorography for evaluation of dysphagia. The manometry was performed with nasally inserted catheter, OD 2.6mm with 4 pressure sensors. The sensors were kept at the level of tongue base, upper pyriform sinus (PS), apex of PS, and UES. The endoscopic view of the pharynx and the pressure waveforms were recorded in the computer simultaneously. We performed comparisons between the manometric findings of UES relaxation and videofluoroscopic UES opening. [Results] UES opening was diagnosed as good in 34 patients and poor in 18 patients. The peak pressure, pressure-drop, pressure-rise in the UES had significant correlation on the fluorographic UES opening finding. Stepwise logistic regression test revealed pressure-drop was the most useful predicting parameter of fluorographic UES opening, and the cutoff level to predict fluorographic opening of UES was 33.5mmHg (specificity 0.853, sensitivity 0.759). [Conclusion] By performing manometry in addition to standard VESS, it is possible to supplement functional evaluations of UES function, thus overcoming the drawback of VESS.

PTA5. FEES: WHEN TO PROCEED TO DYNAMIC STAGE OF THE ASSESSMENT AND WHEN TO STOP AT THE STATIC STAGE? A. Sheikhan / Phoniatric Unit, ENT Department, Cairo University, Egypt

Introduction: Functional endoscopic evaluation of swallowing is the non-radioactive state of the art alternative to VFSS & MBS. The paradigm shift to FEES over the past 10 years has raised many trials at improving such a technique and developing more strategies to make it more thorough. Nacci and his co-workers in 2008 described the two stages of FEES examination as static and dynamic stages of FEES examination. Materials & methods: This retrospective study included a cohort of 120 patients. Data was collected from the files of those patients attending the dysphagia clinic, phoniatric unit, ENT department Kasr el Ainy hospital, Cairo University between the periods of March 2011-March 2014. Data of patients were collected then analyzed for a number of factors affecting the success of the FEES procedure. Results: Reviewing the outcomes of FEES for all patients who underwent this procedure revealed the following: FEES had to be aborted before undergoing any stage of assessment in 5% of patients; incomplete FEES assessments (static stage) were encountered in 25% of patients, complete-success-
ful (static & dynamic stages) FEES trials were encountered in 70% of patients under study. In the present study, 5% of the patients could not perform a flexible laryngoscopy while being awake. In such patients, FEES had to be aborted and other tools had to be used (VFSS) in addition to bedside assessments. The data studied showed that 10% of the patients suffered from silent aspiration as discovered during their FEES. 20% of patients suffered from severe aspiration and FEES had also to be terminated at the static stage. Full protocol of FEES was successfully applied to 70% of patients included in the study. Although FEES is considered as non radioactive state of the art assessment tool of dysphagia; yet it has its restrictions.

PTA6. ORAL–FEES (O–FEES) IN CLINICAL PRACTICE: A PILOT EXPERIENCE IN A SWALLOWING CENTER
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Introduction In our swallowing center, we tested a variation of FEES (Fiberoptic Endoscopic Evaluation of Swallowing) conceived to directly observe the oral phase of swallow (oral-FEES, O-FEES) in clinical practice. Feasibility, safety and acceptability of O-FEES were evaluated. Method A sample of 52 consecutive out-patients (29 men/21 women, mean age 66.96 yrs), visited our swallowing center from January to March 2014, complaining of swallowing disorders of different etiology. FEES and O-FEES, complete with bolus tests, were proposed subsequently. After the procedures, every patient was requested to complete a standardized ten-point questionnaire, for FEES and O-FEES. Pain, gagging, choking and anxiety and overall tolerability were measured on a 1 to 10 scale, with 1 being well-tolerated and 10 being poorly tolerated. Results Of the 52 participants who enrolled in the study, 50 (96%) completed both the procedures: 2 patients discontinued O-FEES due to excessive gagging. No participant experienced any adverse event or complication. Differences between the 10 pairs of questions were noted and among all the items globally considered (Wilcoxon signed-rank test p=0.001). In general, patients experienced greater levels of pain, gagging, choking and anxiety with O-FEES, although the procedure was accepted and tolerated. Conclusion O-FEES, compared with FEES, is a feasible, safe and quite acceptable procedure. Differences among the variables tested by the questionnaire could be due to a lack of experience of the clinician in performing the procedure.

PTA7. THERE IS A SIGNIFICANT ASSOCIATION BETWEEN AIRWAY PROTECTION AND PHARYNGEAL SECRETION RATINGS MADE DURING FEES AND THE PRESENCE OF ASPIRATION AND POST SWALLOW RESIDUE
J. Keane; S. Lawson; J. Regan / Tallaght Hospital, Ireland

Background: Fiberoptic Endoscopic Evaluation of Swallowing (FEES) allows speech and language therapists (SLT) to evaluate airway protection and oro-pharyngeal secretions in adults with dysphagia. Airway protection is rated using an eight point scale and a four point scale is used to rate pharyngeal secretions. Airway protection is rated using an eight point scale and a four point scale is used to rate pharyngeal secretions. Airway protection rating is correlated significantly with residue ratings post FEES exam and airway protection (r=0.218; p=0.013). This association was evident on fluids (r=0.198; p=0.043) and puree (r=0.227; p=0.027). Airway protection also correlated significantly with residue ratings post puree swallows (r=-0.201; p=0.039). Secretion scale rating was also associated with dysphagia severity as measured by the FOIS (r=-0.366; r=0.000) There was a significant correlation between secretion rating and presence of aspiration on any consistency (r=0.205; p=0.014). This association was observed on fluids (r=0.22; p=0.017) and puree (r=0.216; p=0.025). There was a significant correlation between aspiration rating and residue on fluids (r=0.44; p=0.000) and puree (r=0.445; p=0.000) Conclusion: Findings suggest that airway protection ratings and secretion scale ratings are associated with swallow safety and efficiency and hence should be included in FEES study protocols.

PTA8. DYSPHAGIA ASSESSMENT: PSYCHOMETRIC PROPERTIES OF ORO-LINGUAL PRESSURE MEASUREMENT TOOLS
A.R. Perry1; J. McCormack1; R. Conway2; V. Casey2; M. Manning1 / 1Dept of Clinical Therapies, UL, Ireland; 2Dept of Engineering, UL, Ireland; 3Dept of Physics, UL, Ireland

Introduction: We need more stable (aka reliable) and valid measurement tools for assessing baseline tongue pressures so that therapy/interventions can be better designed and outcome measures can be accurately documented. Such a tool would enable a taxonomy of normal isometric and swallowing pressures to be established, against which clinical populations can be assessed. MATERIALS; METHODS: OroPress is a new wireless sensor tool that is non-obtrusive, highly accurate in recording and can be used for documenting both isometric and swallowing pressures in adult humans. We have used OroPress with a sample of norm participants of both sexes, purposefully recruited across decades (20-80+years) RESULTS Isometric orolingual pressure data (during tasks to generate maximum pressure and endurance) from 100 normal participants, and swallowing data (liquid, semi-solid boluses) from 48 of these will be presented and discussed. The results show three distinct phases of orolingual pressure generation; first a negative pressure, then a positive force and then a positive pressure. DISCUSSION The use of OroPress improves accurate measurement and can enhance specificity of interventions. Its development for use as a feedback tool will also be discussed. The results from OroPress have implications for re-examining the oral phase of swallowing, and we are establishing this highly accurate tool as a criterion standard for oro-lingual pressure measurement.
PTA9. X-RAY OF OESOPHAGUS DIAGNOSING DYSPHAGIA. THE RIGHT CHOICE?
P.D. Holbaek; S.T. Heerwagen / Koege Hospital, Denmark

Introduction: The number of patients with dysphagia is increasing. In Koege Hospital, many patients are referred to oesophageal x-ray in order to diagnose symptoms of dysphagia, even though the sensitivity of x-ray in this context is low. An alternative method is Fiberoptic Endoscopic Evaluation of Swallowing (FEES), giving visual information about the anatomy of the pharynx and swallowing, comprising the sensitivity and protection of airways. The aim was to investigate, how often oesophageal x-ray is normal in patients, referred because of symptoms of dysphagia. Material & Methods: An audit of referrals and descriptions of x-rays in all patients who, on the basis of symptoms of dysphagia, were referred for oesophageal x-ray at Koege Hospital in 2012. The following parameters were registered: who it was, that made the referral (private ear-nose-throat (ENT)/general practitioner (GP)/specialized outpatient department/other) and the result of the x-ray (normal/abnormal). Results: 141 patients were referred for oesophageal x-ray to diagnose dysphagia. The examination was normal in 75 of the patients. Out of these 38 (51%) were referred from private ENT clinics, 2 (3%) from a GP, 27 (36%) from the specialized outpatient department at Koege Hospital and 8 (10%) from others. Conclusions: Patients referred from primary health care, who presented a normal oesophagial x-ray to diagnose dysphagia, were referred from private ENT clinics (saliva or 5 ml water swallows), location (anterior or posterior tongue), head position (neutral or chin tuck) and effort (normal or effortful swallow); between subjects factor was language spoken. Data were analyzed using a mixed model approach, looking at main and interaction effects. Results: All effects are reported as significant at p < .05. Analysis of within-subjects factors revealed a significant main effect of effort whereby pressures generated during effortful swallowing were greater than normal swallowing. No significant main effect of bolus type, location or head position was found. The main effect of the between-subjects factor (i.e. language) was not significant. Conclusion: This study demonstrates the absence of a significant effect of language spoken (french vs. dutch) on swallowing pressures. The lack of influence of head position in this study contrasts with previous research.

PTA10. VALIDATING A NOVEL TONGUE PRESSURE MEASUREMENT DEVICE: RESEARCH CHALLENGES
A.C. Conway; Ō. Gítheaney; K. McTiernan; M. Walshe / Trinity College Dublin, Ireland

Introduction: There is a need to develop valid, reliable tools to measure tongue strength and endurance. Current methods, such as the Kay Pentax Swallowing Signals Workstation (KSW) and Iowa Oral Performance Instrument (IOPI), present many drawbacks. Hand held devices (e.g. IOPI) are prone to placement error making it difficult to capture accurate test-retest data. Fixed devices (e.g KSW fixed tongue pressure array) are invasive, leading to difficulties swallowing and discomfort. The validation process of novel tongue pressure measurement devices involves testing its validity and reliability against a reference standard. In the absence of a robust reference standard, we selected popular handheld and fixed tongue pressure devices. The aim of this study was to compare measurements from a novel wireless fixed device (OroPress) against handheld and fixed reference standard devices (KSW and IOPI). A further aim was to examine the comfort level of devices. Methods: Isometric tongue strength and endurance was collected from 38 healthy participants (male and female; 18-39 years). Measures from OroPress were compared with three devices (IOPI, KSW splined and non-splined). Participants rated all devices on a likert scale, to compare comfort. Captured data was inputted into an Excel spread sheet and statistical analysis was applied. Results: Measures of isometric tongue strength and endurance, measured on all four devices (IOPI, OroPress, KSW splined and non-splined) will be presented. The results show variability highlighting limitations with current reference standard tools. OroPress was rated as most comfortable. Conclusions: Challenges exist in the validation of new tongue pressure measurement devices without an ideal reference standard. Proposed solutions are discussed.

PTA11. THE INFLUENCE OF LANGUAGE SPOKEN, BOLUS LOCATION, HEAD POSITION, BOLUS TYPE AND EFFORT ON LINGUAL SWALLOWING PRESSURES
J. Vanderwegen; J. Allouche; G. Van Nuffelen; L. Van den Steen; C. Guns; A. Schruers; M. De Bodt; G. Chantrain / UMC Saint-Pierre, Belgium; *Antwerp University Hospital, Belgium

Purpose: De glutivue tongue pressures are influenced by a number of variables. This study aimed to study the effects of language spoken, bolus location, head position, bolus type and effort on swallowing pressures, since these factors were not fully explored in previous research. Methods: 67 adults participated in this study (49 french-speaking, 18 dutch-speaking) with a mean age of 39 yo (range 22-66). None had symptoms of dysphagia or a medical condition potentially associated with dysphagia. All participants passed the 3 fl oz. swallowing screening. Tongue pressures during swallowing were assessed using the Iowa Oral Performance Instrument. Within subjects factors were bolus type (saliva or 5 ml water swallows), location (anterior or posterior tongue), head position (neutral or chin tuck) and effort (normal or effortful swallow); between subjects factor was language spoken. Data were analyzed using a mixed model approach, looking at main and interaction effects. Results: All effects are reported as significant at p < .05. Analysis of within-subjects factors revealed a significant main effect of effort whereby pressures generated during effortful swallowing were greater than normal swallowing. No significant main effect of bolus type, location or head position was found. The main effect of the between-subjects factor (i.e. language) was not significant. Conclusion: This study demonstrates the absence of a significant effect of language spoken (french vs. dutch) on swallowing pressures. The lack of influence of head position in this study contrasts with previous research.

PTA12. IS OUR NEW FEES SERVICE IN AN ACUTE HOSPITAL SETTING CHANGING OUR DYSPHAGIA MANAGEMENT?
S. Lawson; J. Keane; J. Regan / Tallaght Hospital, Ireland

Background: A FEES service was introduced to an acute teaching hospital in Dublin, Ireland, December 2011. This study reviews (i) who has been referred for FEES since this service has begun; (ii) how the procedure was tolerated and (iii) the prevalence of aspiration across consistencies in those examined and (iv) any change in oral diet recommendations change based on the FEES exam. Methods: A retrospective review of all FEES examinations conducted over a two and a half year period in an acute hospital setting was conducted. Data obtained included patient demographics, protocols followed, tolerance and adverse events and examination findings. Results: Of 149 FEES exams included in data analysis (86 male; mean age 70 years, age range 18-99), 68% of patients (96/149) were inpatients. Seventy exams conducted within the...
SLT dept and 61 were completed at the bedside (18 not documented). Clinical groups included stroke (34%; N=51); neurology (20%; N=29); ICU (7%; N=10); oncology (7%; N=10); gastroenterology (4%; N=6) and age-related health care (4%; N=6). Fifty-seven patients were being tube fed (46=NG tube; 10=PEG tube; 1=other) and eighteen patients (N=18; 13%) had tracheostomy tubes. All FEES examinations were completed by trained SLT’s without any local anaesthetic or nasal decongestant. The scope was inserted successfully in all cases and all procedures were tolerated by patients without any adverse events. 37% (N=55) aspirated on one consistency; 38% (N=26%) aspirated on two consistencies or more and 34% did not aspirate during the FEES exam.

Aspiration was detected on ice-chips (5%; N=8); fluids (41%; N=61); modified fluids (11%; N=17); puree (9%; N=13) and solid (1%; N=2). Based on the Functional Oral intake Scale (FOIS) ratings, oral diet recommendations changed significantly based on FEES findings (p=0.015).

Conclusion: This new FEES service is well tolerated without adverse events across clinical groups. It is useful in detecting aspiration across consistencies and findings are altering oral diet recommendations in patients with dysphagia.

PTA14. VIDEOFLUOROSCOPIC EVALUATION OF SWALLOWING IN ANOREXIA NERVOSA

R. Dantas; C.M. Santos; R.A. Cassiani / Medical School of Ribeirão Preto USP, Brazil

Introduction: Anorexia nervosa is a disorder in eating behavior that is most frequently seen in young women who have a pathological fear of weight gain and wrong eating patterns that cause malnutrition and weight loss. It may be associated with biological and psychological alterations. Our hypothesis was that anorexia nervosa may cause modifications in swallowing. Material and Method: We evaluated, by the videofluoroscopic method, the oral and pharyngeal phases of swallowing in 8 patients (7 women) with the diagnosis of anorexia nervosa (ages: 15-49 years, BMI: 12.3-24.8kg/m2) and 14 (10 women) healthy volunteers (ages: 18-50 years, BMI: 18.3-24.6kg/m2). Each subject swallowed, in triplicate, 5mL of liquid bolus (thick liquid) and 5mL of paste bolus (pudim consistency). Results: With swallows of the paste bolus the duration of pharyngeal transit was shorter in patients (mean: 499ms, 95% CI: 469-529ms, p=0.02), the duration of oropharyngeal transit was shorter in patients (mean: 735ms, 95% CI: 668-801ms) than in controls (mean: 1007ms, 95% CI: 819-1216ms, p=0.09) and the hyoid movement duration was longer in patients with anorexia (mean: 1166ms, 95% CI: 963-1368ms) than in controls (mean: 924ms, 95% CI: 853-995ms, p=0.09). With the liquid bolus the duration of hyoid movement was longer in anorexia nervosa patients (mean: 1265ms, 95% CI: 963-1566ms) than in controls (mean: 864ms, 95% CI: 778-949, p=0.01).

Discussion: The combination of shorter pharyngeal transit and longer hyoid movement during swallows may be an adaptation of swallowing behavior of people who want to avoid food ingestion. The confirmation of this hypothesis needs further investigation with a larger number of patients with anorexia nervosa.

PTA15. CORTICAL CONTRIBUTION TO SWALLOWING: WHAT CAN SLEEP-SWALLOWING TELL US?

M-L Huckabee; K. Lamvik; C. Jones; K. Erfmann; R. Jones / 1University of Canterbury, New Zealand; 2Swallowing Rehabilitation Research Lab, New Zealand; 3New Zealand Brain Research Institute, New Zealand

Introduction: During sleep, with the reduction of supratentorial modulation and an absence of volitional initiation, the temporal sequence of the brainstem-generated pharyngeal swallow is thought to be fairly invariant. Comparison of swallowing in sleep compared to wake conditions may inform us on role of the volition in swallowing motor control. Materials and Method(s): Sleep vs wake comparisons will be provided in this provocative series of case reports of patients with swallowing impairment, documenting swallowing respiratory coordination (SRC) and/or pharyngeal motility using manometry. Comparisons with normal behaviour will also be made. Results: Data suggest that in healthy controls, sleep produces less consistency in SRC than during a wake state. However, surprisingly in a patient with brain stem stroke, SRC that is severely impaired when awake, normalises during sleep, suggesting a disruptive influence of cortical modulation. In patients with missequencing of pharyngeal pressure during a wake state, this pattern is
also maintained during sleep. However for patients who have recovered normal sequencing as a function of rehabilitation, sleep swallows revert to a pattern of mis-sequencing, suggesting the need for continued cortical contribution to maintain normalised swallowing function. Discussion: Sleep studies provide intriguing comparisons that will motivate further research. The role of cortical modulation in rehabilitation is particularly of interest in designing rehabilitation protocols.

**PTA16. KINEMATIC ANALYSIS OF TONGUE AND HYOID BONE IN THE ORAL PROPULSIVE PHASE OF SWALLOWING USING VIDEOFLUOROSCOPY**

M. Yoda1; M. Mizuma1; H. Taniguchi2; T. Iida2; Y. Hamada2; H. Oka- zaki2; J.B. Palmer2  1Showa University, Japan; 2Johns Hopkins University, United States

**Purpose:** We examined the motion of the tongue and hyoid bone in the oral propulsive phase of swallowing, with attention to the “squeeze back” movement of the tongue against the palate. Method: Videofluoroscopy was performed in lateral projection while 13 healthy participants (mean age 22 years) ate 6g pieces of banana, cookie and tofu. We evaluated the motion of 4 measuring points during swallowing: the anterior tongue marker (ATM) glued on the tip of tongue, the posterior tongue marker (PTM) glued on the dorsum of tongue, the jaw, and the hyoid bone. Subsequently we measured the temporal order of motion of each measuring point and evaluated the elevation of the PTM in relation to motion of the hyoid bone. Results: The ATM and hyoid bone started moving upward almost simultaneously at the time of mouth closing at the beginning of swallow. PTM started moving upward immediately afterwards. The ATM always contacted the palate before the PTM. The hyoid bone started moving forward just after the PTM contacted the palate. The hyoid bone moved upward and this movement was correlated with the elevation of the PTM, the hyoid upward movement had a temporal relation with the squeeze back movement. Given that, during this period, the hyoid bone moved upward and this movement was correlated with the elevation of the PTM, the hyoid upward movement had a temporal relation with the squeeze back movement.

**PTA17. SWALLOWING AND VENTILATION COORDINATION: NEW CONCEPTS REGARDING VENTILATORY AFFERENCES**

E. Verin; I. Ghannouchi; J.P. Marie / Rouen University Hospital, France

Swallowing and ventilation are centrally coordinated to permit swallowing during expiration in normal subjects. We have demonstrated in animal that a rise in CO2 increases the number of swallowing during inspiration, as it increases laryngeal penetration in healthy subjects. Nevertheless, the importance of ventilation has never been determinated in this swallowing and ventilation coordination. The aim of this study was to determine if absence of ventilatory afference could alter this coordination in human. We studied ventilation and swallowing in seven patients with tetraplegia (2 F, 24-56 y), C2-C4 level, ASIA A. All the patients were mechanically ventilated and dependent of the ventilator with a destruction of phrenic nerve motoneurons due to the tetraplegia. Ventilation was analysed by an endotracheal tube introduced via the tracheostomy lied to a pressure transducer (DA 100C, Biopac Systems Inc., Santa Barbara, CA). Swallowing time was determined visually and analysed regarding pressure signal to determine if it was during expiration or during inspiration. Swallowing was also explored by nasoendoscopy with liquid and paste consistencies. In all the patients, bedside swallowing assessment performed during the nasoendoscopy was normal. We analysed 27 deglutitions during mechanical ventilation, and found 13 swallowing during inspiration and 14 during expiration. In conclusion, this study demonstrated that ventilation afferences are important in the swallowing – ventilation coordination, and in this model, its absence altered profoundly its mechanisms. Regarding the tetraplegia and its neurological consequences, the afferences should come through the sympathetic system or the phrenic nerve and not from vagus nerve.

**PTA18. PROPRIOCEPTION REGULATES THE PHASE TRANSITION TIMING DURING OROPHARYNGEAL SWALLOWING**

K. Saitoh; T. Takeda / Kumamoto University, Japan

Introduction: To switch from the mastication to deglutition phase during oropharyngeal swallowing, some form of sensory information must signal the end of mastication, thereby leading to the initiation of deglutition. Sherrington introduced the concept that proprioceptive signals function to regulate the transition from one rhythmic movement phase to another (1910). Proprioception has been primarily studied on locomotor movements in chronic spinal cats. Little is known regarding the role of proprioception on oropharyngeal swallowing. The aim of the present study was to elucidate the impact of the proprioceptive information from the masseter muscle on the timing of oral-to-pharyngeal phase transition during swallowing. Materials and Methods: Subjects sat in front of a computer screen with 5 ml of jelly on their tongue. When visual cue was displayed on the screen, subjects were instructed to contract the masseter muscles at various intensities, from “weak” to “intermediate” and “strong”. Subjects adjusted the intensity while listening to auditory feedback from the muscle contraction during each trial. Swallowing was initiated immediately after the visual cue. In each subject, 15–21 recordings were obtained. Results and Discussion: When the contraction of the masseter muscle strengthened, the faster motor units of the suprathyroid muscles required for laryngeal movements were recruited. This suggests that proprioception from the masseter muscles enhances the initiation of pharyngeal swallowing. Proprioceptive afferents from the masseter muscle might reinforce the background activities of motoneurons innervating the suprathyroid muscles, presumably via a postinhibitory rebound mechanism.

**PTA19. TONGUE STRENGTH MEASUREMENT IN HEALTHY POPULATION**

G. Tegou; V. Chioti / AKMI Metropolitan College, Greece

Introduction: Tongue movement, strength and pressure are of critical importance for the functions of speech and swallowing. Sarcopenia, the loss of muscular mass and strength, that occurs typically in elderly or reduced tongue strength secondary to neurological or neuromuscular...
Abstract Book

FRIDAY OCTOBER 24

12:00 – 12:30  Auditorium
Poster Viewing Group  PPB / PTB

PPB1. A PROFILE OF FEEDING AND SWALLOWING SKILLS IN INFANTS PRESENTING WITH VOCAL CORD PARALYSIS AND CONGENITAL HEART DISORDERS IN AN ACUTE PAEDIATRIC TEACHING HOSPITAL
C. Butler; Z.M. Greene / Our Lady’s Children’s Hospital, Ireland
Introduction Infants with vocal cord paralysis (VCP) often require careful management of airway and feeding difficulties. Infants with cardiac conditions often undergo surgical procedures which may exacerbate or contribute to VCP. The aim of this study is to profile feeding issues in these infants with a view to developing a clinical algorithm for Speech and Language Therapy (SLT) involvement in these cases. MATERIALS/ METHODS: Infants with VCP diagnosed in the period Jan 2007 – Dec 2013 identified from the Hospital Inpatient Enquiries (HiPE) database. A subgroup with coexisting cardiac conditions was selected. A retrospective chart review was then undertaken of this subgroup and the SLT intervention was profiled. RESULTS: 126 cases presented with a diagnosis of VCP. 47 (37%) of these had a co-existing cardiac condition. 4 subjects were excluded (2 long term tracheostomy/ventilator dependent, 1 not referred to SLT, 1 transferred to other centre post cardiac surgery). Nature of the vocal cord paralysis, presenting symptoms, swallow ability, type of feeding, clinical and instrumental assessments undertaken, estimates of aspiration and swallow efficiency and outcomes for the group were profiled. A high 62.5% incidence of silent aspiration was evident on videofluoroscopy. Feeding outcomes improved with 49% progressing to full oral feeding. Limited follow up data was available on VCP but 23 of 28 cases had resolved. CONCLUSION: Silent aspiration is high in this complex population. A care pathway should include clinical

PPA20. DYSPHAGIA AND DIFFICULTIES IN TAKING MEDICINE IN THE ELDERLY REQUIRING LONG-TERM CARE
S. Nozaki1; S. Katsuragi1; K. Nohara2; M. Yoshikawa2; M. Yoshida2; K. Ichimura3; K. Itami4; Y. Umaki5; S. Asaki6; Y. Okada7; S. Sakan4 / Hyogo University of Health Sciences, Japan; 2Osaka University Dental Hospital, Japan; 3Hiroshima University, Japan; 4Toyonaka Heisei Hospital, Japan; 5Ibaraki Prefectural University of Health Sciences, Japan; 6Yamada Health Sciences, Japan; 7Hyogo College of Medicine, Japan
Introduction: Elderly persons under medical care suffering from dysphagia are unable to successfully consume oral medication in some cases. These difficulties can lead to inaccurate decisions about the effectiveness of treatment as well as QOL related to compliance with the medication. This study intended to analyze data on taking medicine through medical profession, and extract the clinical issues in taking medicine. Material & Method: Case cards were collected from 130 elderly patients with difficulties in taking medicine in 22 facilities, and analyzed. This work was supported by JSPS KAKENHI Grant Number 25350694. Results: Many patients with difficulties in taking medicine, aged in their 70’s and 80’s. 54 patients suffered from cerebrovascular disorders, 19 from neuromuscular disorders, 17 from respiratory disorders, and others. Patients with severe dementia were excluded from this study. Abnormalities were observed in 71 patients taking water swallowing test and in 97 patients taking repetitive swallowing test (RSST). 52 patients required full assistance for taking medicine, and 52 patients required partial assistance. 22 patients consumed 4-6 drugs at a time. Difficulty was not dependent on the size of the dosage or type of formulation. Survey items such as difficulty in swallowing the medicine, action of swallowing more than 3 times, repeatedly washing the medicine down with jelly and water, choking, drug remnants in the oral cavity, or in the throat, and medicine found around the oral cavity after consumption were common. Conclusion: RSST may be an indicator to predict difficulties in taking medicine, and careful observation of the patient’s medicine taking is required.

PTA21. FORK TEST: A NEW SIMPLE AND RELIABLE VISCOSITY MEASUREMENT FOR DYSPHAGIA DIET
J-W Park / Dongduk University Ilsan Hospital, Republic of Korea
Introduction: To develop and validate a simple and reliable viscosity assessment tool, the fork test, for dysphagia diet. Fork test is based on the flow of the food between the fork’s tines and the food that remains on the fork. Material and Methods: 27 kinds of viscosity-altering water and thickener mixtures were prepared and their viscosities were measured by a viscometer and compared to those by the fork test to evaluate the correlation between the two. Nine kinds of viscosity-altering formulations of dysphagia diet were selected and classified using the fork test. Interobserver reliability of the fork test was assessed using an intraclass correlation coefficient (ICC). Results: Water and thickener mixtures were categorized into grade 3, grade 2 or grade 1 according to the fork test, using reference values of 0 to 300 cP, 300 to 10000 cP and more than 10000 cP by the viscometer. Mayonnaise, mango pudding and mashed boiled pumpkin were classified as grade 1. Curd type yogurt, honey and tomato ketchup were classified as grade 2 and tomato juice, fluid type yogurt and diluted barium solution as grade 3. The fork test showed excellent interobserver reliability (ICC=0.994). Conclusions: The fork test demonstrated good reliability and validity. It can be used as a practical tool to assess viscosity and classify dysphagia diet.
and instrumental assessment and identify management strategies to minimise clinical risk and optimise oral feeding efficiency. Longer term feeding outcomes appear hopeful for this group.

**PPB2. PREVALENCE OF PENETRATION AND ASPIRATION IN PRE-TERM AND FULL-TERM INFANTS**  
K.E.B. Bühler1; S.H. Hsin1; R. Popriaga-Breuel2; S.C.O. Limongi3 /  
1University Hospital, University of São Paulo, SP, Brazil; 2University Hospital, University of São Paulo, SP, Brazil, Switzerland; 3Department of Physiotherapy, Communication Science & Disorders, Occupational Therapy, Faculty of Med, Brazil

Introduction: Premature infants are known to have a higher risk for dysphagia due to complex medical conditions, early gestational age, very low birth weight, prolonged intubation and respiratory diseases. Only a few studies describe swallowing disorders in this population using videofluoroscopic assessment (VFSS) and the use of scales is scarce. The purpose of this study was to describe and to compare the swallowing disorders in preterm infants against full-term infants using the Penetration-Aspiration Scale (PAS). Materials and Methods: A total of 140 infants with suspect dysphagia, 70 full-term (FT) and 70 preterm (PT), were referred for VFSS at a secondary university hospital and enrolled in this retrospective study. All exams were recorded on a DVD and the PAS and variables obtained by each exam, were statistically compared for reliability between two raters. The exams were analyzed for the following variables: frequency of sucking and swallowing, nasopharyngeal backflow, residue, laryngeal penetration, aspiration and PAS. Results: Mean gestational age was 34.1±4.3 weeks and mean birth weight was 1507±989g in the PT group, and 39.7±2.9 weeks and 3049±605g in FT group. 98% of FT group received scores >2 and 100% of the PT group received scores >1 in PAS. 62.5% (n:10) had anterior oral spillage, 93.75% (n:15) had lingual propulsion, 81.25% (n:13) had posterior oral spillage, 56.25% (n:9) had laryngeal penetration, 37.50% (n:6) had tracheal aspiration. For the WHO Child Growth Standards 6 (N:37,5%) individuals had very underweight, 4 had underweight (N:25%) e 6 (N:37,5%) had appropriated weight-for-age. Conclusions: It is very frequent swallowing disorders, with more alterations in oral phase and alteration in nutritional status in cerebral palsy. Future studies could investigate the oral phase in cerebral palsy to understand better the impact on nutritional status.

**PPB5. SWALLOWING AND WHO CHILD GROWTH STANDARDS IN CEREBRAL PALSY IN TWO BRAZILIAN CENTERS**  
R.R.D. Santos1; F. Agostinho2; M.S.F. Marconato2; A.G. Jorge³; P.C. Cola2 /  
1Paulista State University Marília, Brazil; 2Marilia University, Brazil; 3Bauru Hospital, Brazil

Introduction: Cerebral palsy refers to a group of disorders in the development of posture and motor control, occurring as result of a non-progressive lesion of the developing central nervous system. Swallowing and nutritional disorders are very common in this population. The aim of this study was analyze the swallowing parameters and nutritional status in cerebral palsy. Materials and Methods: A cross-sectional clinical study, included 16 protocol of children with cerebral palsy, 12 males and 4 females, 13 with oral feeding and 3 with nasal probe, age range 10 months until 14 years old, that were followed in two reference centers in Brazil. The swallowing was analyzed by videofluoroscopic study and the weight by World Health Organization (WHO) Child Growth Standards. Results: It was found alterations in swallowing, 56.25% (n:9) had anterior oral spillage, 93.75% (n:15) had lingual propulsion, 81.25% (n:13) had posterior oral spillage, 62.50% (n:10 ) had pharyngeal residue, 56.25% (n:9) had laryngeal penetration, 37.50% (n:6) had tracheal aspiration. For the WHO Child Growth Standards 6 (N:37,5%) individuals had very underweight, 4 had underweight (N:25%) e 6 (N:37,5%) had appropriated weight-for-age. Conclusions: It is very frequent swallowing disorders, with more alterations in oral phase and alteration in nutritional status in cerebral palsy. Future studies could investigate the oral phase in cerebral palsy to understand better the impact on nutritional status.
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PPB6. RELATIONSHIP BETWEEN AIRWAY CLEARANCE FUNCTION AND ASPIRATION PNEUMONIA IN GERIATRIC NURSING HOME RESIDENTS
K. Nohara; N. Kaneko; Y. Uchida; N. Tanaka; T. Sakai / Osaka University Dental Hospital, Japan

Introduction: There is a discrepancy between aspiration detected by a swallowing examination and the development of aspiration pneumonia. This suggests that, to predict the onset of pneumonia, it is necessary to consider not only the invasiveness of aspiration but also biophylactic factors. Airway clearance by mucociliary transport is regarded as an important defense mechanism against aspiration pneumonia. However, there have been few reports on this topic. We examined the relationship between the airway clearance function by mucociliary transport and aspiration pneumonia in geriatric subjects.

Material & Methods: Subjects were 25 geriatric nursing home residents (group A: mean age=79.8 years). Airway clearance was evaluated by measuring the saccharin time (ST), which reflects the mucociliary function. Sixteen subjects with aspiration (group A) detected by videofluoroscopy were divided into two groups based on whether they developed fever due to respiratory disease (group AB n=9) or not (group AC n=6) over the past one year. Twelve healthy young individuals (group N) served as a control.

Results: The mean ST of group A (29.1±34.0 minutes) was significantly longer than that of group N (8.5±3.8 minutes). The ST of group AB was 75.9±53.8 minutes, and that for group AC was 17.2±12.8 minutes, with significant difference.

Conclusions: Geriatric nursing home residents may show decreased airway clearance functions in comparison with healthy individuals. A prolonged ST might indicate an increased risk of respiratory disease caused by aspiration in the elderly.

PPB7. DENTAL PROSTHESIS AND MAXIMUM ISOMETRIC TONGUE PRESSURE IN OLDER PEOPLE: ARE THEY RELATED?
N.S. Paula; A.C.B. Gois; L.A. Pernambuco; H.V. Magalhaes Junior / Federal University of Rio Grande do Norte, Brazil

Introduction: Dental prosthesis (DP), especially when poorly adapted, can lead the elderly to choose more easily chewing food, which can affect the tongue muscles condition. The aim of this study is to determine if the use of dental prosthesis is related to the maximum isometric tongue pressure (MITP) in elderly. Materials and Methods: 100 elderly Brazilians volunteers, 20 men and 80 women, aged between 60 and 96 years (mean 71.95±8.06), with no history of neurological disease or head and neck surgery, were evaluated for dental conditions, use of dental prosthesis and complaint about swallowing. The MITP was obtained using the Iowa Oral Performance Instrument (IOP). The tongue against palate task was repeated three times to obtain the mean value for each subject. Student T-test and Pearson correlation were applied. The significance level was 5%. Results and Discussion: 51% were total edentulous, 94% had no functional dentition and 78% used dental prosthesis. Complaint about swallowing was reported by 29%. The mean of MITP was 45.39±16.08 kPa. DP and MITP were not related (p = 0.971) as well as complaint about swallowing and MITP (p=0.940). There was a weak and negative correlation between age and MITP (p = 0.012). It was found that most elderly people in this sample had a bad dental health, but MITP mean was near to the standard value for the elderly. Probably the dental prosthesis is not an isolated factor and other factors may be associated and should be investigated. Despite the weak correlation, the result suggests that the aging is correlated with the decline of the tongue muscles condition.

PPB8. PREVALENCE OF DYSPHAGIA IN NURSING HOMES
S. de Wit1; J.G. Kalf2 / 1 Liemerije Nursing Home, Zevenaar, Netherlands; 2 Radboud Universiteit Medical Centre, Nijmegen, Netherlands

Introduction: Dysphagia is a known problem in the population of nursing home residents. The consequences like reduced quality of life, malnutrition or pneumonia might be an even greater risk in frail elderly patients, but prevalence rates are unclear. The aim of this study is to review the literature on prevalence rates of dysphagia in nursing homes.

Methods: A systematic search in PubMed was done in April 2014 with the broad search term “dysphagia nursing home” without limitation of publication year or language. This yielded 234 articles. A manual
Brazil; In this study, it was possible to identify both specific characteristics of tic parameters studied concerning consistency and volume. Discussion: frequency, final intensity and time for taking in saliva, liquid, nectar, people. The following acoustic parameters were established: initial Doppler. Therefore, it is extremely important use this device to ana-

Methodology: The exam with Sonar Doppler was applied to 75 elderly to analyze and standardize deglutition sounds among the elderly population.

Doppler. Thus, impacting their physical and emotional health as well as quality of life as described in the literature concerning stroke survivors. Therefore, it is important that health care professionals help them manage their dysphagia, as by using adaptive strategies, in order to improve participation in mealtimes.

Introduction: With age, deglutition is one of the functions that undergo changes. Such changes may be diagnosed by methods that allow the process. Results: Results illustrated three over-arching themes: hop the daily challenges of having dysphagia which was therefore the aim of this study. Materials and Methods: Using purposive sampling three patients over aged 65 and admitted to a geriatric ward were recruited. Individual in-depth interviews were conducted twice using a semi-structured interview guide and subjected to Interpretative Phenomenological Analysis and a reflexive journal was kept throughout the process. Results: Results illustrated three over-arching themes: every day is a struggle, mealtimes become very emotional, and coping with the consequences. Participation in mealtimes changed considerably with the onset of dysphagia, and the participants were avoiding participating in meal-related activities due to the physiological and psychological consequences such as coughing, risk of aspiration, shame, and fear of others taken pity on them. Discussion: Mealtimes were reduced to a mere human basic need of sustenance and left the participants with little energy to perform other activities of daily living.

Abstract Book

Acoustic Analysis of Oropharyngeal Deglutition in the Elderly Population Using Sonar Doppler

F. S. Soria; R.E. Silva; A.M. Furkim / Faculdade Assis Gurgacz, Brazil; Universidade Estadual Paulista, Brazil; Universidade Federal De Santa Catarina, Brazil

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PPB1. INTRODUCTION TECHNIQUES OF ORAL FORWARD FOR BABIES WITH ORAL FEEDING DYSFUNCTION

L. Garebelotto; F.R. Silveira; F.S. Soria; M.J. Machado; A.M. Furkim / Universidade Federal De Santa Catarina, Brazil; Faculdade Assis Gurgacz, Brazil

Introduction: Suction constitutes the necessary function to lead to appropriate oral-motor development and effective feeding in the early months of life. However, we can see cases of healthy newborn babies who didn’t show any irrelevance that could interfere in breastfeeding during postpartum period, although they had oral dysfunctions. In this context, this study aims at finding which of the three breastfeeding techniques employed to term babies with oral dysfunctions are more effective to progress the newborn in breastfeeding towards the maternal breast. Methods: Descriptive, comparative and observational study of newborns found in the Hospital Wards at theHU – UFCS. Results: There wasn’t any relation between the kind of labor and the technique qualification time; 90% of the babies that were born by C-section had a length of stay longer than those born by normal delivery. The most widely used technique to suppress oral dysfunction was translactation, followed by finger feeding. The non-nutritive suction technique was used with 25% of the newborns and the association between non-nutritive suction and translactation and syringe using gloves was done to 12.5% of the babies. Discussion: The most widely used technique, associated or not with other techniques, was translactation. Besides, the baby wasn’t able to realize the complete breastfeeding in the maternal breast during the length of stay. This way, keeping the use of the techniques at home, half of the patients were introduced to the method of artificial feeding.

PPB10. ADAPTING TO MEALTIMES: THE LIVED EXPERIENCES OF ELDERLY PEOPLE WITH DYSPHAGIA

J.B.J. Jensen, J. Boeberg / Department of Physio- and Occupational Therapy, Bispebjerg and Frederiksberg Hospitals, Denmark

Introduction: Eating and drinking is one of the most basic human needs for sustenance and typically enacted in a social context. However, difficulties caused by dysphagia complicate and can prevent enjoyment of one of life’s greatest pleasures. In Denmark occupational therapists are primarily responsible for and play an important role in dysphagia management. Little is known about how elderly patients are experiencing the daily challenges of having dysphagia which was therefore the aim of this study. Materials and Methods: Using purposive sampling three patients over aged 65 and admitted to a geriatric ward were recruited. Individual in-depth interviews were conducted twice using a semi-structured interview guide and subjected to Interpretative Phenomenological Analysis and a reflexive journal was kept throughout the process. Results: Results illustrated three over-arching themes: every day is a struggle, mealtimes become very emotional, and coping with the consequences. Participation in mealtimes changed considerably with the onset of dysphagia, and the participants were avoiding participating in meal-related activities due to the physiological and psychological consequences such as coughing, risk of aspiration, shame, and fear of others taken pity on them. Discussion: Mealtimes were reduced to a mere human basic need of sustenance and left the patients with little energy to perform other activities of daily living. Thus, impacting their physical and emotional health as well as quality of life as described in the literature concerning stroke survivors. Therefore, it is important that health care professionals help them manage their dysphagia, as by using adaptive strategies, in order to improve participation in mealtimes.

PPB9. ACOUSTIC ANALYSIS OF DYSFAGIA MANAGEMENT. Little is known about how elderly patients are experiencing the daily challenges of having dysphagia which was therefore the aim of this study. Materials and Methods: Using purposive sampling three patients over aged 65 and admitted to a geriatric ward were recruited. Individual in-depth interviews were conducted twice using a semi-structured interview guide and subjected to Interpretative Phenomenological Analysis and a reflexive journal was kept throughout the process. Results: Results illustrated three over-arching themes: every day is a struggle, mealtimes become very emotional, and coping with the consequences. Participation in mealtimes changed considerably with the onset of dysphagia, and the participants were avoiding participating in meal-related activities due to the physiological and psychological consequences such as coughing, risk of aspiration, shame, and fear of others taken pity on them. Discussion: Mealtimes were reduced to a mere human basic need of sustenance and left the patients with little energy to perform other activities of daily living. Thus, impacting their physical and emotional health as well as quality of life as described in the literature concerning stroke survivors. Therefore, it is important that health care professionals help them manage their dysphagia, as by using adaptive strategies, in order to improve participation in mealtimes.

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L. Garebelotto; F.R. Silveira; F.S. Soria; M.J. Machado; A.M. Furkim / Universidade Federal De Santa Catarina, Brazil; Faculdade Assis Gurgacz, Brazil

Introduction: Suction constitutes the necessary function to lead to appropriate oral-motor development and effective feeding in the early months of life. However, we can see cases of healthy newborn babies who didn’t show any irrelevance that could interfere in breastfeeding during postpartum period, although they had oral dysfunctions. In this context, this study aims at finding which of the three breastfeeding techniques employed to term babies with oral dysfunctions are more effective to progress the newborn in breastfeeding towards the maternal breast. Methods: Descriptive, comparative and observational study of newborns found in the Hospital Wards at the HU – UFCS. Results: There wasn’t any relation between the kind of labor and the technique qualification time; 90% of the babies that were born by C-section had a length of stay longer than those born by normal delivery. The most widely used technique to suppress oral dysfunction was translactation, followed by finger feeding. The non-nutritive suction technique was used with 25% of the newborns and the association between non-nutritive suction and translactation and syringe using gloves was done to 12.5% of the babies. Discussion: The most widely used technique, associated or not with other techniques, was translactation. Besides, the baby wasn’t able to realize the complete breastfeeding in the maternal breast during the length of stay. This way, keeping the use of the techniques at home, half of the patients were introduced to the method of artificial feeding.
PTB2. SWALLOWING DISORDERS IN NEONATES OF A GESTATIONAL AGE OF 34 WEEKS OR OLDER
S. Jury¹; D. Lavoria²; A. Peralta³; F. Martinelli² / ¹Fundacion Fono, Argentina; ²Hospital Privado Mitre, Argentina
Introduction: The literature considers that a 34-weeks neonate is mature enough to coordinate suction-deglutition-breathing, but there are external factors that alter this coordination (e.g. extended fast, mechanical ventilatory assistance, presence of a nasogastric or orogastric tube, parenteral nutrition, extended hospitalization, CNS depressant medication.) OBJECTIVE To verify if neonates of a gestational age of 34 weeks onwards show swallowing disorders and if so, determine which ones. MATERIAL AND METHODOLOGY 584 patients from the Section of Neonatology in XXXX Private Hospital have been tested. 454 patients of a gestational age of 34 weeks onwards have been selected, which represented 77.74% of the population. The patients have been studied through videofluoroscopy, monitored with pulse oximetry. The study has been carried out by an interdisciplinary team. As for statistics, an exploratory descriptive analysis of the data was employed. The "Student’s t-" test was applied to compare the average figures among the groups. The selected patients were the ones who showed some difficulty when starting feeding or to keep the suction, a cacosynthesis crisis, stridor, antecedents of Apparent Life Threatening Event in those patients aged 38 weeks onwards. RESULTS: We found that of the 454 neonates, 198 (43.61%) showed swallowing disorders; 14.1% in the preparatory stage, 28.8% in the oral stage, 92.9% in the pharyngeal stage and 14.1 years with learning use of various compensation mechanism easier.

PTB3. THE SOURCES OF PEDIATRIC NURSES KNOWLEDGE AND SKILLS IN CHILDREN FEEDING
E. Winnicka / Department of Gastroenterology, Hepatology and Nutrition Disorders, The Children’s Memorial He, Poland
Introduction: Incorrect feeding technique is one of the factors leading to feeding disorders in child with poor feeding skills. Appropriate technique increase feeding efficacy and safety, it prevents deterioration of feeding disorder symptoms. Nurses duties comprise of feeding infants during their hospitalization as well as giving parents the instructions on how to properly feed their child. Nurses should be highly qualified in feeding techniques thus my aim was to assess their ways of acquiring the skills and knowledge concerning feeding technique. Materials: 253 nurses answered the questions. 86% of them declared that they have fed children currently or previously, 11% declared that they would possibly do it in the future, 3% said they would not feed children. Method: The survey was performed among nurses who participated in the lectures in 5 different cities. The characteristic of feeding disorders and the ability of food intake as an activity based on child sensory-motor experiences were presented during the lectures. After these lectures participants were asked how they had learned feeding technique and weather the way of feeding depended on feeder skills. Results: 93% of individuals declared that feeding technique depended on nurses skills. Only 3% said that it was irrelevant. 10% of participants had learned children feeding at university or professionals courses, 25% while practicing in hospitals and 8% during special courses. 24% relied on intuition, own experiences or a trial and error method. 33% had learned from more experiences colleagues. 74% declared they were not skilled enough to feed children, only 26% claimed they did not need practical trainings. Conclusions: The knowledge of pediatric nurses and their skills in children feeding are not sufficient.

PTB4. SWALLOWING FUNCTION OF A PIERRE ROBIN SEQUENCE WITH ABSENCE EPIGLOTTIS: A CASE REPORT
N. Demir¹; H.E. Kilinc¹; S. Seret¹; R.O. Gunaydin¹; A.A. Karaduman² / ¹Hacettepe University Swallowing Research and Application Center, Turkey; ²Hacettepe University, The Faculty of Medicine, Otorhinolaryngology Department, Turkey
Introduction: Absence of epiglottis which is a laryngeal anomaly is often seen with Pierre Robin Sequence. Epiglottis has an important role on swallowing function which is to prevent food penetration into trachea by closing down laryngeal vestibule during laryngeal elevation. The aim of our study was to show clinical progression of a Pierre Robin Sequence with absence of epiglottis as well as the effects of intervention (nasogastric tube insertion, swallowing therapy) on this problem. Case Presentation: Male infant whose parents were consanguineous and brother was diagnosed with autism was born by Caesarean section with 3 kilograms. When he was 11 month, swallowing evaluation was carried out in Hacettepe University Research and Application Center of Swallowing Problems. Penetration, aspiration and nasal reflex were determined in liquid and pudding consistencies in videofluoroscopic swallowing evaluation. Dysmotility was also seen. Nonoral feeding was suggested according to swallowing evaluation. Nasogastric tube was inserted after swallowing evaluation and swallowing therapy program has been applied for 2 months. Chewing exercises, oral muscle training to trigger swallowing reflex, laryngeal mobilization and neuromuscular electrical stimulation was applied in therapy program. Family education with home exercises was given. Swallowing therapy was applied by therapists twice a week in our clinic and home exercises were performed by family every day. After 2 months second swallowing assessment was performed. Aspiration in only liquid consistency was seen and there was no aspiration in pudding consistency. So liquid restricted oral feeding was suggested. Conclution: : Early diagnosis and intervention is very important in patients with absence of epiglottis. Swallowing rehabilitation increase health quality of patients in coming years with learning use of various compensation mechanism easier.

PTB5. MOTHERS’ PERSPECTIVES CONCERNING FEEDING CHILDREN WITH CEREBRAL PALSY EXPERIENCING EATING, DRINKING AND SWALLOWING PROBLEMS, IN GREECE
M. Smyrnaki; E. Manara; G. Tegou / AKMI Metropolitan College, Greece
Introduction: Children with cerebral palsy (CP) often exhibit profound eating, drinking and swallowing difficulties, leading to undernourishment and failure to thrive. For parents of children with CP the feeding process is a significant source of anxiety. This study aims to explore mothers’ experiences of feeding children with cerebral palsy in Greece. Material & Method: Six mothers were interviewed on their experiences...
of feeding their children with CP. Children’s age ranged from 4 to 10 years old. Semi-structured interviews were recorded, transcribed and analyzed using phenomenological analysis. Results: Themes that emerged point to an emotional experience by mothers who express apprehension about their children’s future linked to their health, feeding process, and support. The sense of responsibility is also substantially present. Mothers mentioned their lack of awareness of and knowledge about the condition and the true needs of their children. Lack of professional guidelines and reduced practicality of advice in the first years of life were highlighted. Time needed for personal acceptance and realization of the situation, as well as social acceptance are also critical. Positive perspectives also emerged relating to mothers’ willpower, rapport with their children and faith in the social welfare system in Greece. Examples from the mothers’ accounts illustrate each emerging theme. Conclusions: The results are considered within the framework of current interventions for CP and how mothers’ experiences enhance the understanding of professionals (speech and language therapists, occupational therapists, pediatricians, etc) involved with the feeding of children with CP, thus aiding in providing appropriate support to children and families.

PTB6. THE DEVELOPMENT OF NURSING CARE PATHWAY FOR STROKE PATIENT WITH SWALLOWING PROBLEM: A PILOT PROJECT  
C. Nuntharacs; R. Chobchuen / Rehabilitation ward, Srinagarind Hospital, Thailand  

Introduction: Dysphagia is common problem in stroke patients leading to aspiration pneumonia, malnutrition, poor quality of life and also has an effect on the functional outcome. To prevent such complications, the comprehensive care by interdisciplinary care team is very important. Rehabilitation ward, Srinagarind hospital developed the clinical nursing practice guideline which suited our context to improve the quality of care in stroke patients with swallowing problem. The objective of this study was to evaluate whether the clinical nursing guideline help to prevent complication and improve the outcome of swallowing rehabilitation. Materials & Methods: The clinical nursing guideline was developed by systematic review of evidence, focus group and peer reviewed. The final guideline was implemented to the 8 stroke patients with swallowing problem during the June 2012- September 2013. The primary outcome was the incidence of aspiration pneumonia. Results: All of participants were received dysphagia screening test within 24 hour after admission. There was no incidence of aspiration pneumonia during trial period. Nurses could completely follow the guideline, and had more confidence to serve the stroke patients with swallowing problem. Conclusion: The clinical nursing guideline is useful in patient care process and help to improve the quality of patient care. The further study in large group should be done to ensure the effectiveness of guideline.

PTB7. MANAGEMENT OF DYSPHAGIA IN THE ACUTE PHASE: A CONSIDERATION OF INTERNATIONAL PRACTICE  
C. Fairfield1; D.G. Smithard2 / 1University of Reading, United Kingdom; 2Princess Royal University Hospital, Kings College Hospital, United Kingdom  

Introduction: Dysphagia is a common result of stroke and may result in nutritional and respiratory complications, increased length of hospital stay and increase in mortality. Management of dysphagia in the acute phase was found not to be consistent in a UK pilot. This study considers an international pilot.

Materials and Methods: A questionnaire was constructed to address aspects of assessment and management and distributed internationally to an opportunistic and anonymous sample. Results: 210 questionnaires were returned from 30 countries with 198 sufficiently complete to analyse. The largest samples were from the UK (35%) and US (33%). 94.8% countries utilised VFS and 52.6% FEES. 45.4% services had access to both assessments. 99% and 92% countries modify food and fluid frequently (10-50% patients) or for most (>50%) patients and 90% do this in the first 48 hours. A variety of compensatory, postural and stimulation techniques were applied across countries with the majority applied rarely (1-10% patients). Availability and frequency of usage of VFS was found to significantly influence type of techniques applied. This included Shaker p<0.02. Effortful swallow p<0.03, Super-Supraglottic p<0.015 as well as Transcutaneous Electrical Stimulation p<0.02. Varied utilisation of this assessment was indicated in determining management techniques. There was variation by country in members of the MDT involved in management. Discussion: Management techniques applied are not necessarily in line with the evidence base in recent systematic reviews. Modification of food and fluid is the primary technique employed internationally in the acute phase. There is variation in use of other management techniques which may be due to service drivers such as availability of assessments rather than evidence led.

PTB8. ASSOCIATION BETWEEN SEVERITY SCALE AND ORAL AND PHARYNGEAL TRANSIT TIME IN STROKE  
P.C. Cola1; A.G. Jorge2; P.W. Ribeiro3; J.R. Lauris4; A.R. Gatto5; R.G. Silva5; R.R.D. Santos4 / 1Marilia University, Brazil; 2Bauru Hospital, Brazil; 3Paulista State University Botucatu, Brazil; 4São Paulo University Bauru, Brazil; 5Paulista State University Marilia, Brazil  

Introduction: The severity scales used to classify oropharyngeal dysphagia in stroke has been used laryngeal penetration and laryngotracheal aspiration as markers. However, in this population have found wide variation in oral and pharyngeal transit times swallowing, and these parameters can also involve, respectively, the nutritional status and safety of the lower airway in post-stroke individuals. Purpose: The aim was to associate the oral transit time, pharyngeal response and pharyngeal transit with the severity oropharyngeal dysphagia in stroke. Materials and Methods: Cross-sectional clinical study. Participated 61 individuals after acute ischemic stroke. Of these, 28 were males and 33 females, with ages ranging from 40 to 101 years. It was performed videofluoroscopy modified barium swallowing and quantitative analysis with 5 ml of paste bolus. It was measured the oral transit time (OTT), response pharyngeal (RPT), and pharyngeal transit (PTT). The first group (G1a) consisted of patients who presented OTT to 2000 ms and group 1b (G1b) who had greater than 2000 ms OTT. The second group (G2a) included who had TRF up to 250 ms and group 2b (G2b) subjects who...
had greater than 250 ms. The 3a (G3a) TRF group was composed of individuals who had PTT to 1000 ms and group 3b (G3b) who had greater than 1000 ms PTT. After quantitative analysis was applied of severity oropharyngeal dysphagia proposed by Daniels et al. 1997. Results: The results showed no significant association between oral transit time, response pharyngeal and pharyngeal transit with severity oropharyngeal dysphagia respectively. Discussion: There was no association between GI and GI with the severity scale used.

PTB9. THE LATENCY OF SUBMENTAL MOTOR-EVOKED POTENTIALS AFTER TRANSCRANIAL MAGNETIC STIMULATION IN NORMAL SUBJECTS Shaofeng Zhao1,2; Z.L. Dou1; X.M. Wei3; J. Li2; Y. Lan2; T. Lin3; M. Dai3
1The First Affiliated Hospital of Soochow Un, China; 2The Third Affiliated Hospital of Sun Yat-sen University, China
Introduction: Motor-evoked potentials (MEPs) recorded from pharyngeal and hypomandibular muscles have been assessed the effects on neural pathways underlying swallowing. More attention is put on the amplitude of MEPS however, the influence of latency is less known. Objective: Our hypothesis was that the latency of submental muscle MEPs at contraction state in different lateral transcranial magnetic stimulation(TMS) stimulation and different lateral of record muscle can reflect the function of swallowing corticobulbar projections. Methods: In 21 normal subjects (age:23-51years, 4 males), bilateral submental electromyographic response were recorded after single-pulse TMS over ipsilateral and contralateral submental motor cortex, to measure the influence of latency.

PTB10. SWALLOWING AND RESPIRATORY CONDITION IN STERNERT’S SYNDROME: CASE REPORT.
S.M.M. Onofri1; P.C. Cola2; T.C. Alves3; R.M. Manzano4; F.F. Navega5; R.R.D. Santos1; R.G. Silva6 / 1Paulista State University Marilia, Brazil; 2Marilia University, Brazil
Introduction: Sternert’s Syndrome or Myotonic Dystrophy is an autosomal dominat inherited, caused by the expansion of CGT in the long arm of chromosome 19. This syndrome is considered the most common muscular dystrophy presenting at adulthood and characterized by progressive muscular weakness and atrophy of the muscles of the neck, the face and the distal parts of members. Other findings include weakness oropharyngeal and respiratory muscles that can affect the swallowing and breathing. The purpose this study was to describe swallowing and findings in Sternert’s Syndrome. Materials and Methods: We present the case of a 65 years old man, with diagnosis of Sternert’s Syndrome, who presented oropharyngeal dysphagia for of all consistencies and respiratory alteration. He underwent the fiberoptic endoscopic evaluation of swallowing with paste, thickened liquid and liquid food consistencies and evaluated parameters such as premature oral spillage, pharyngeal and oropharyngeal transit with severity oropharyngeal dysphagia proposed by Daniels et al. 1997. Results: The contraction of submental muscle was learned through electromyographic biofeedback. Results: latency of r-MEP was 2.93±1.0.39ms, the amplitude of r-MEP was 1.04±0.39mV; the latency of c-MEP was 6.27±1.38ms, the amplitude of c-MEP was 0.44±0.19mV. The central conduction time was 4.2(3.7-5.5)ms.

PTB11. MAXIMUM TONGUE PRESSURE AND APPROPRIATE LIQUID THICKNESS IN ALS
A. Hiraoka1; M.Y. Yoshikawa1; S. Takaki1; M. Nakamori1; T. Nagasaki1; N. Hosomi1; K. Tanimoto1; K. Tsuga1; Y. Izumi1 / 1Hiroshima University, Japan; 2Vihara Hananosato Hospital, Japan; 3Kajikawa Hospital, Japan; 4Vihara Hananosato Hospital, Japan
Introduction: Adding thickness to liquid plays an important role in regular diet of dysphagia patients. And standardization in the way of adding thickness to liquid or food is needed, but this behavior is done automatically based on practical experience by care givers, patients’ families etc. Low impact, simple and high validity swallowing examination is desired to consider the food morphology with deterioration of swallowing function at regular intervals in ALS. Tongue pressure measurement can be one of the examinations to satisfy this requests. The purpose of this study is to see the relationship between their characteristics of oropharyngeal function and appropriate liquid thickness. Materials and Methods: The relationship of swallowing function and appropriate liquid thickness were considered through VF in 13 ALS patients (7 Male, 6 Female, 38-70y). Liquid, thin and thick liquids (1400+-150 mPa/s, 7802+-186 mPa/s, 12rpm) were used, and qualitative (aspiration, penetration, oral/pharyngeal residues) was conducted. In addition, repetitive saliva swallowing test, maximum tongue pressure (MTP), diadokokinesis were considered to check their oral function. Results: Various oral functions were found, though their pharyngeal functions were maintained at a constant level. The lower MTP, the much oral residues around base of tongue in subjects with less than 20 kPa. The difficulty of bolus holding and premature swallow were found in liquid and thin liquid swallowing, however premature swallow could be avoided during thick liquid swallowing in the subjects with less than 10 kPa of MTP. Discussion: Oral function, especially MTP and oropharyngeal closure were related. MTP might be useful to evaluate their swallowing function in ALS.

PTB12. ORAL TRANSIT TIME AND CORTICAL LATERALITY IN STROKE
T.C. Alves; R.R.D. Santos; P.C. Cola; A.G. Jorge; A.R. Gatto; R.G. Silva
Paulista State University-Marilia, São Paulo/Brazil, Brazil
Introduction: The quantitative analysis of oral transit time (OTT) in stroke has been performed in different consistencies of food. However, few studies has analyzed the relationship between the changes in the oropharyngeal transit time and cortical laterality, in this population.
The aim of this study was to analyze the relationship between OTT and cortical laterality in stroke. Materials and Methods: A cross-sectional clinical study. It was analyzed 61 videofluoroscopic swallowing study of individuals post acute ischemic stroke. The exams were divided into two groups, according to the cortical laterality. The group 1 (G1) consisted of 31 individuals with left cortical lesion and group 2 (G2) of 30 individuals with right cortical lesion. It was realized videofluoroscopy with 5ml paste consistency. The OTT was defined as an interval in milliseconds between the first frame showing the food inside the oral cavity and the first frame showing the proximal part (head) of the food bolus in the hypopharynx or the point where the lower margin of the mandible crossed the tongue base. The quantitative analysis of the OTT was performed with specific software and two judges trained in the procedure and considered analysis of agreement performed between the judges. Results: In G1 was verified that the OTT<2s was found in 6% and OTT>2s in 94%. In G2 the OTT<2s occurred in 53% and OTT>2s in 47% of the sample. Regarding the average, was found to G1 and G2, respectively, the OTT<2s was 1216ms and 1802ms and OTT>2s was 6427ms and 5787ms. Conclusions: Therefore, it concludes in the left cortical lesions were more likely OTT>2s, however in right lesion there was no difference in frequency.

PTB14. INTERDISCIPLINARY APPLICATION OF PROTOCOL 24 HOURS AFTER AN ISCHEMIC STROKE
A. Furkim1; J.R. Nascimento Junior2; J. Viana3; F.S. Soria3 / 1Universidade Federal De Santa Catarina, Brazil; 2Database Assis Gurgacz, Brazil
Introduction: Dysphagia is observed in 50% of the patients with acute Ischemic Stroke, which goes down to 10% within a month. Safe oral feeding is greatly important between the acute and chronic stages, a process capable of minimizing complications and keeping life quality of those patients. Drawing up a protocol for underlying diseases is a way of guaranteeing the quality being offered, besides allowing for the use of acting concept based on evidences. Therefore, the purpose of this study is to describe and characterize phonoaudiological assistance in an institutional protocol for patients who had a stroke, within the first 24 hours as well as the Function Oral Intake Scale (FOIS) both at the beginning and the end of speech therapy follow-up. Methodology: A retrospective study carried out by analyzing the medical history of 115 patients (75M and 40F) diagnosed with a stroke, included in an institutional protocol at a General Hospital in São Paulo, Brazil, between January 2010 and March 2012. Results: Fifty four percent of the patients classified into phonoaudiological follow-up/rehabilitation had fasted prior to the evaluation and the FOIS value could not be calculated; 24% had their FOIS value higher than 4; 22% had their FOIS value lower than 3. After phonoaudiological rehabilitation, 84% of them showed a FOIS value higher than 4; and 16%, lower than 3. Discussion: It is essential to offer early phonoaudiological care to patients with an ischemic stroke and classify this professional into a specific protocol, so as to avoid possible complications in the acute stage of the disease. It will guarantee the patient’s better safety in light of their feeding and rehabilitation prognostic. It is worth pointing out that, after phonoaudiological follow-up/rehabilitation, some patients had their FOIS value lower than 3 and did not show exclusive and safe oral feeding conditions, thus guaranteeing better quality of life within therapeutic limits.

PTB15. SWALLOWING DISORDERS MANAGEMENT AND PARKINSON’S DISEASES
M. Puech; S. Grand; P. Fichaux Bourin / Service ORL -Hopital Larrey - CHU Toulouse, France
Introduction: Swallowing disorders are more frequent in Parkinson’s disease and increase the risk of aspiration, pneumonia and precarious nutritional status. Disorder of initiation is the main implicated mechanism. Most dynamic management are based on a strength training of the muscles of the oral cavity, pharynx and larynx. Some studies used effortful maneuver on intensive training to improve swallowing. Material & Methods: The purpose of the present study is to determine whether intensive swallowing training including a sensory recalibration component improves swallowing function for patients with Parkinson’s disease. The design of the study is a individual case protocol. The model of the study is the one used in the LSVT (Lee Silverman Voice Treatment), the protocol involves an intensive treatment delivery (a 1-hour session, 4 days a week for 4 weeks) and the target of the training is specifically the effortful swallowing. The base of recalibration component is the self evaluation. Preliminary baseline measures and results data are the numbers of spontaneous swallowing in a reading task and video radioscopic aspects (initiation, stages, UES opening). Results; Are not yet available Conclusion: This preliminary study give us key points for the Parkinson’s disease swallowing.

PTB16. RELATIONSHIP BETWEEN GLASGOW COMA SCALE AND THE INTRODUCTION OF ORAL DIET IN PATIENTS WITH TRAUMATIC BRAIN INJURY, GLASGOW COMASCALE AND ORAL DIET IN TRAUMATIC BRAIN INJURY
F. Pizani Dutra1; A.P. Duca2; F.S. Soria2; M.J. Machado3; C. Montbeller3; A.M. Furkim1 / 1Universidade Federal De Santa Catarina, Brazil; 2Faculdade Assis Gurgacz, Brazil
Introduction: Traumatic Brain Injury(TBI) is defined as any lesion of traumatic origin which results in anatomical or functional damage of the scalp, skull, meninges, brain or its vessels. The degree of impairment is commonly determined using the Glasgow Coma Scale to assess the functional outcome after TBI. In this context, the purpose of this study is to analyze dietary progression in patients with TBI. Methodology: A prospective cross-sectional study which will examine TBI patients’ medical records. The studied population consisted of all patients who had been medically diagnosed with TBI of both sexes undergoing treatment between May and September 2013 at Governador Celso Ramos Hospital, in Florianopolis, Brazil. Results: The study enrolled 25 patients, most of which were male, 46 years old on average. Regarding the severity of Traumatic Brain Injury, there was a predominance of severe cases. The introduction of safe oral dietary intake only occurred when patients achieved higher levels in Glasgow Coma Scale (around 11 and 12).On admission, patients’ oral intake was absent; during hospitalization and consequent improvement of consciousness and alertness levels, they were able to progress to oral feeding for at least one consistency and...
AIMED AT IMPROVING THE COORDINATION AND STRENGTH OF THE SWALLOWING IMPAIRED MUSCLES. HE EXHIBITED SIGNIFICANT IMPROVEMENT AFTER 2 WEEKS OF TREATMENT, WITH AN INCREASE OF OROPHARYNGEAL SENSITIVITY AND COORDINATION. AFTER 6 WEEKS OF TREATMENT THE PATIENT ACHIEVED ORAL INTAKE WITHOUT OVERT SIGNS OR SYMPTOMS OF ASPIRATION. THE FINAL MBS SHOWED VERY IMPORTANT INCREASE OF PHARYNGEAL CONTRACTION AND AN IMPROVEMENT OF HYOLARYNGEAL EXCERUSION. NO RESIDUALS. AFTER 12 WEEKS OF TREATMENT, ORAL AND PHARYNGEAL PHASES WERE NORMAL, PEG WAS REMOVED AND HE HAD A 7-POINT IMPROVEMENT IN FOIS SCORE. IN CONCLUSION, THIS REPORT SHOWS THE POSSIBILITIES OF COMBINING THERAPEUTIC EFFORTS, AND SPECIFICALLY, IT SUGGEST THE HIGH EFFECTIVENESS OF NMES IN COMBINATION WITH CONVENTIONAL TREATMENT OF DYSPHAGIA IN PATIENTS WITH BRAINSTEM INJURY.

PTB18. SCREENING FOR DEGLUTITION DISORDERS IN OLDER PEOPLE (RADI): VALIDITY EVIDENCE BASED ON TEST CONTENT AND RESPONSE PROCESS
H.V. Magalhaes Junior; L.A. Pernambuco; R.V.A. Cavalcanti; K.C. Lima Federal University of Rio Grande do Norte, Brazil

Introduction: The majority of the studies performed in elderlies with deglutition disorders do not dimension the problem on a population level. Our group of Brazilian researchers proposes the epidemiological screening tool Rastreamento de Alterações da Deglutição em Idosos (RADI) — Screening for Deglutition Disorders in Elderlies. The aim of this study was to obtain the validity evidence based on test content and response process. Materials and Methods: The source of items was the clinical experience of the authors and an extensive literature review. The items were judged in a dichotomous scale by a committee of 44 experts in the construct. The content validity index (CVI) was calculated for analysis of relevance of each item. 42 elderlies, mean age 71.2 (+/- 6.2) years old, equally distributed by sex, educational level, income and health insurance were recruited and classified if each item was understandable. A qualitative analysis of the comments and suggestions made by experts and elderlies were also performed. Results and Discussion: The first version of RADI had 17 questions. Eight questions had a CVI below the standard value of 0.78. Thus, problematic items were reviewed and changes were made by consensus. Then, syntactic and semantic issues were identified in the phase of the response process. A new consensus was made and the final version of instrument with 16 items was produced for future analysis of the other psychometric properties. The validity evidence based on test content and response process were determinant elements in the adjustments related to the relevance of items, construct representation and syntactic and semantic issues. The results provide valuable data to support the next stages of the research.

PTB19. NO EVIDENCE FOR TONGUE FATIGUE INDUCED BY CONSUMPTION OF A CHALLENGING MEAL IN HEALTHY YOUNG AND OLD ADULTS
J. Vanderwegen1; G. Van Nuffelen2; J. Allouche3; C. Guns4; R. Elen5; G. Chantrain2; M. De Bodt1 1U.M.C. Saint-Pierre, Belgium; 2Antwerp University, Belgium; 3Thomas More University College, Belgium

Introduction: The effect of meal consumption on tongue strength has not been well studied, leaving questions on its potential for inducing fatigue unanswered (Kays, 2010). This study aimed to quantify the effects of consuming a challenging meal on tongue strength in a large group of healthy young and old adults. Methods 160 adults participated in this study, evenly distributed among 4 age categories (20-60, 61-70, 71-80 and 80+ years old). They had no symptoms of swallowing difficulty or history of any medical condition potentially associated with dysphagia. All participants passed the 3 fl oz, swallowing screening. Tongue strength measures were assessed using the Iowa Oral Performance Instrument (IOPJ) at the anterior and posterior tongue. Two maximal isometric pressures (MIP) were obtained, at baseline and after the meal challenge. The standardized meal required 52 swallows, evenly distributed between water, yoghurt and puree, volumes of 5 and 10 ml, effortful and habitual swallowing, including 4 dry effortful swallows. Post-meal measures of tongue strength were performed immediately after completing the meal. Data were analyzed using paired sample T-tests. Results: At the group level a significant increase in anterior MIP was found post-meal compared with pre-meal; no significant differences were present at the posterior location. Subsequent analysis.
PTB20. FUNCTIONAL RELATIONSHIP BETWEEN RISK FACTORS OF ASSESSMENT OF POWER WITH DYSPHAGIA IN INSTITUTIONALIZED ELDERLY N. Bunn Chaves1; F.R. Silveira1; F.S. Soria2; M.J. Machado1; A.M. Furtado1
1Universidade Federal De Santa Catarina, Brazil; 2Faculdade Assis Gurgacz, Brazil
Introduction: The body undergoes several changes with aging and such changes are responsible for most of the clinical changes. Among them is dysphagia, which is increasingly affecting this population. Along with these modifications, the elderly require more special care from relatives, who can’t afford to take that elderly person to long-stay institutions. Therefore, the purpose of this study is to investigate the profile of the type of power consistency in institutionalized elderly people in Florianopolis, Brazil. Methods: This is a cross-sectional study carried in long-stay institutions for the elderly in Florianopolis, where 39 senior citizens were interviewed. Results: During data collection feeding liquid consistency and solid was not the most reported type. Among the main risk factors for dysphagia, the groups of signals for dysphagia and use of ill-fitting dentures were the most prevailing in this study. The association of risk factors with the results of the functional assessment of feeding showed that using dental prostheses up to 10 years and preferring a pudding thickness consistency diet produced significant results, with signs of aspiration and/or clinical signs of positive dysphagia. Discussion: Feed profile of the institutionalized elderly population in this study points to the preferential liquid and solid intake, although the difficulties in biomechanical presbyphagia suggest these consistencies, since the elderly report extreme discomfort with homogeneous gummy colonized in the oropharynx secondary to poor oral hygiene can potentially lead to respiratory infections, while bad oral hygiene can reduce ability for food intake and lead to undernourishment. This study aims (1) To examine how oral hygiene relates to demographic and cognitive and motivational factors in elderly in residential and nursing homes in Greece. (2) To examine the effect of oral hygiene on their swallowing ability and presence of aspiration pneumonia, nutritional and health related quality of life measures. Method: Forty-four participants, over 60 years old, living in residential and nursing homes of the elderly in big urban centres in Greece, were evaluated for the presence of dysphagia, cognitive status, quality of life and aphasy measures, while a nutritional assessment was also performed. Oral hygiene routines were obtained on questionnaire. Results: Findings reveal that only 22.7% of the participants fulfill the basic criteria for oral hygiene. Age was found to be a statistically significant factor (p<0.01) affecting oral hygiene. Apathy was also found to significantly affect oral care, suggesting that people less motivated tend to care less for their oral hygiene. Participants with MMSE scores below 22 tend to have poor oral care. Oral hygiene was found to have a statistical significant effect on measures of nutrition, with participants with poor oral hygiene being undernourished. Participants with proper oral care had no indications of dysphagia, while participants with poor oral care showed a trend towards swallowing difficulties. Conclusions: Research and clinical implications are being discussed.

PTB21. THE EFFECT OF ORAL HYGIENE ON SWALLOWING, NUTRITION AND QUALITY OF LIFE IN ELDERLY IN GREECE G. Tegou1; A. Paschalieri1; K. Sdravou2; E.V. Dermitzakis2; G. Makris2
1AKMI Metropolitan College, Athens, Greece; 2Frontizw-nursing home, Thessaloniki, Greece; 3Technological Institute of Peloponissos, Kalamata, Greece
Introduction: Oral hygiene is a significant contributing factor to general health, functioning and quality of life. Literature suggests that bacteria colonized in the oropharynx secondary to poor oral hygiene can potentially lead to respiratory infections, while bad oral hygiene can reduce ability for food intake and lead to undernourishment. This study aims (1) To examine how oral hygiene relates to demographic and cognitive and motivational factors in elderly in residential and nursing homes in Greece. (2) To examine the effect of oral hygiene on their swallowing ability and presence of aspiration pneumonia, nutritional and health related quality of life measures. Method: Forty-four participants, over 60 years old, living in residential and nursing homes of the elderly in big urban centres in Greece, were evaluated for the presence of dysphagia, cognitive status, quality of life and aphasy measures, while a nutritional assessment was also performed. Oral hygiene routines were obtained on questionnaire. Results: Findings reveal that only 22.7% of the participants fulfill the basic criteria for oral hygiene. Age was found to be a statistically significant factor (p<0.01) affecting oral hygiene. Apathy was also found to significantly affect oral care, suggesting that people less motivated tend to care less for their oral hygiene. Participants with MMSE scores below 22 tend to have poor oral care. Oral hygiene was found to have a statistical significant effect on measures of nutrition, with participants with poor oral hygiene being undernourished. Participants with proper oral care had no indications of dysphagia, while participants with poor oral care showed a trend towards swallowing difficulties. Conclusions: Research and clinical implications are being discussed.

SATURDAY OCTOBER 25
12:00 - 12:30 Auditorium
Poster Viewing Group PPC / PTC

PPC1. PRESSURE FLOW CORRELATES WITH PRE-SWALLOW PHARYNGEAL BULUS PRESENCE L. Ferris1; T. Omar2; M. Selleslagh3; N. Rommel1
1Women’s and Children’s Hospital, Australia; 2Flinders University, Australia; 3University of Leuven, Belgium
Introduction: Pre-swallow pharyngeal bolus presence (PSPBS) is viewed in oro-pharyngeal dysphagia with dysfunction of oral bolus containment and/or pharyngeal trigger. Pressure-Flow Analysis is an objective method for interpretation of pharyngeal pressure and bolus flow patterns. This study aimed to identify specific alterations in pressure-flow metrics (PFM) and swallow risk index (SRI) in the event of PSPBS. METHODS: Liquid swallows from 69 (34 males, mean age 62yrs (13, 95) broad dysphagia patients and 8 controls were recorded with a High Resolution Impedance Manometry catheter during concurrent videofluoroscopy. Bolus movement and pharyngeal level reached were recorded relating to lingual propulsion (marker of oral containment) and laryngeal elevation (marker of pharyngeal trigger). PFA was performed using MATLAB-based software (AIMplot) to derive PFM and SRI. Patients and controls were allocated to 1 of 4 groups. Groups were compared using one way ANOVA or ANOVA on Ranks. RESULTS: Poor oral containment and/or poor pharyngeal trigger was associated with an abnormal SRI. A shorter TNadImp-PeakP (time from maximum bolus distension in the pharynx till the pharyngeal stripping wave) was most significantly associated.

Conclusion: The SRI tracks severity of swallow dysfunction. TNadImp-PeakP may be a marker of PSPBS, specifically in association with oral containment defined in this study.

PPC2. THE IMPLEMENTATION OF A COUGH REFLEX TESTING PROTOCOL IN ACUTE STROKE MANAGEMENT: A CLINICAL AUDIT OF DELIVERY OUTCOMES M.-L. Huckabee1; S. Moore2; A. Howard2
1The University of Canterbury, New Zealand; 2Canterbury District Health Board, New Zealand
Introduction: A randomized clinical trial conducted across NZ district...
The aim of this study was to determine incidence of aspiration in this patient group. Aspiration can increase the risk for pneumonia and pulmonary complications are leading causes of death. Weakness in coughing complicates clinical swallowing evaluation of patients with CSCI have respiratory insufficiency and a reduced ability to cough. Cough reflex testing (CRT) in this patient group is at high risk for silent aspiration.

Pneumonia and pulmonary complications are leading causes of death within two months after trauma. Conclusions: The incidence of aspiration or penetration is high in this patient group. Patients with CSCI have respiratory insufficiency and a reduced ability to cough. Weakness in coughing complicates clinical swallowing evaluation and therefore this patient group is at high risk for silent aspiration. VFSS study is recommended for this patient group.

PCC4. LIFE QUALITY AND PREVALENCE OF DYSPHAGIA IN PATIENTS WITH LOW GRADE GLOTTIC CANCER UNDERGOING CURATIVE RADIO-THERAPY
A. Guillén-Solà; N. Bofill-Soler; J. Martínez-Orfí; J. Martínez-Orfí; J. Lozano; O. Pera; P. Forc; E. Marco / Hospitals Mar-Esperança. Parc de Salut Mar, Spain
Introduction - Observe the most affected aspects of life quality in patients with a history of T1N0M0 glottic cancer undergoing 70Gy radiotherapy in the previous 2--13 years. - Determine the long-term side effects of radiotherapy and their involvement in swallowing function. - Determine a useful and not invasive screening for dysphagia in this group. Materials and Methods Transversal descriptive study; 23 patients. Quality of life questionnaires (QLQ-C30+QLQ-H&N35) and screening dysphagic test (Eating Assessment Tool-10 (EAT-10) are administrated; Swallowing is subjectively assessed by Functional Oral Intake Scale (FOIS) and Visual Analogic Scale (VAS); Side effects which appeared after radiotherapy are recorded. Swallowing is studied by clinical examination (Volume Viscosity Swallow Test (VVST) and instrumental examination Videosidefluoroscopy (VFS). Results QLQ-C30+QLQ-H&N35: global health item shows an average of 78.6/100 and a major presence of dysphonia, dry mouth, sticky saliva and cough. EAT-10: a 30.43% has a score >=3. FOIS shows an average of 6.91/7. VAS has an average of 0.74/10. VST emphasizes oral safety alteration of 69.6% and pharyngeal of 43.5%. VFS detects oral efficacy alteration of 95.7% and pharyngeal safety of 78.3%. The concurrent alteration of EAT-10 and VST is marginally significant associated with VFS. Conclusion Most of the patients with T1N0M0 glottic cancer present slight symptoms and alteration of efficacy and safety signs of swallowing without interfering significantly on quality of life, not being necessary a therapeutic intervention in this group of patients. Using EAT-10 and VST simultaneously, we obtain a good screening tool to detect the risk of swallowing impairment in irradiated patients.

PCC5. PHARYNGEAL PRESSURE METRICS FOLLOWING TOTAL LARYNGECTOMY: INSIGHTS INTO OBJECTIVE ASSESSMENT OF TREATMENT OUTCOME
T. Zhang1; M. Szczesniak1; T.J. Omari2; J. Maclean3; I.J. Cook4 / 1St George Hospital, University of New South Wales, Australia; 2Flinder University Medical Centre, Australia; 3St George Hospital, Australia
Introduction: Post laryngectomy dysphagia carries significant morbidity and is routinely assessed using fluoroscopy, which does not provide complete insight into the biomechanical disturbances nor the relative contributions of pharyngeal weakness vs pharyngoesophageal junction obstruction. Recently Automated Impedance Manometry (AIM) is providing objective measures of swallow mechanics. The purpose of this pilot study was to characterise pharyngeal function in total laryngectomies with an insight into objective evaluation of the
PC6. HIGH RESOLUTION MANOMETRY ASSESSMENT OF PHARYNGEAL AND UPPER ESOPHAGEAL SPHINCTER FUNCTION DURING SINGING.
C. Borgers1; A. Jehoul1; L. Van Oudenhove1; W. Decoster2; N. Rommel3 / 1KU Leuven, Belgium; 2Translational Research Centre for Gastrointestinal Disease (TARGID), KU Leuven, Belgium; 3Dept Neurosciences, ExpORL, Belgium
Introduction: Singers often reported swallow complaints. This pilot study explores the effect of singing on pharyngeal and upper esophageal sphincter (UES) function. No studies address pharyngeal-esophageal function (PEF) during phonation, apart from the UES resting pressure which seems not influenced by frequency. Aim of this study is to evaluate the effect of supraglottal/glottal activity, voice onset and comfort/discomfort on PEF. Methods: 10 singers (5 M mean age 32.7y) were assessed by questionnaires and solid state high resolution manometry (HRM) (Given). Subjects were instructed to repeat 4 vocal exercises with increasing frequency until discomfort. Five pressure parameters were analyzed: mean pharyngeal peak pressure and minimum, maximum, mean and range of UES pressure. Data were stratified by glottal/supraglottal activity, voice onset, comfort/discomfort threshold and frequency. Results: Supraglottal activity resulted in a higher pharyngeal pressure (p<0.02), a decrease UES minimum pressure (p<0.02), larger UES pressure range (p=0.01) compared to glottal activity. Increased frequency and voice onset had both an effect on pharyngeal but not on UES function. Pharyngeal pressure was higher with increased frequency and in exercises without voice onset. Comfort/discomfort thresholds have no significant effect on the pharyngeal pressure, but at discomfort a trend existed towards a lower minimum UES pressure. Discussion: Supraglottal activity alters PEF. Both frequency and voice onset do not affect UES function, but rather pharyngeal activity. Over all exercises, a trend towards lower UES minimum pressure during singing is found, which could relate to lower UES tone. Hence, our study cannot confirm higher UES pressures during singing.

PC7. RELATION BETWEEN SWALLOWING CLINICAL FINDINGS AND OBSTRUCTIVE LUNG DISEASE IN CEREBRAL PALSY
A.V.M. Sales1; J.A. Marinho2; C.G. Bentim2; C.M. Giacheti2; R.G. Silva3 / 1Rehabilitation Center SORRI-Bauru and Paulista State University, Brazil; 2Rehabilitation Center-SORRI-BAURU, Brazil; 3Paulista State University, Brazil
Introduction: Individuals with Cerebral Palsy routinely have swallowing difficulties. The oropharyngeal dysphagia in this population can result in many losses, including pulmonary complications. Studies showed a positive relation between oropharyngeal dysphagia and pneumonia. However, few studies have made such analyzes between dysphagia and obstructive lung disease in cerebral palsy. The aim of this study was to analyze the relation between swallowing clinical findings and obstructive lung disease in cerebral palsy. Method: Participated 47 individuals with Cerebral Palsy, aged 3-14 years. Were performed swallowing clinical and respiratory condition evaluation. Was considered a clinical sign of penetration/aspiration the presence of change in breathing pattern, cervical auscultation, wet voice after swallowing and coughing during or after swallowing. In the investigation of respiratory symptoms were analyzed, auscultation, pulse oximetry, respiratory rate, presence of wheezing and productive cough, complaints of patients and carers regarding the accumulation of secretions in the airways and reference pneumonia. Data were analyzed using X2 Phi-square test considering a significance level of 5% (p<0.05) was applied. Results: 15(31.91%) individuals had suggestive signs of penetration or tracheal aspiration and these 13(27.65%) had the presence of obstructive lung disease. 32(68.08%) individuals don’t have suggestive signs of penetration or tracheal aspiration and these 4(8.51%) had presence of obstructive lung disease. The relation between the variables was X2=4.36 P=0.036 Phi-square:0.002. Conclusion: There was a positive relation between the presence of swallowing clinical suggestive signs of penetration or aspiration and obstructive lung disease, highlighting the need for more studies.

PC8. SWALLOWING REFLEX INDUCED BY ELECTRICAL MICROSTIMULATION OF THE PHARYNX. COMPARISON BY AGE
K. Nakagawa1; M. Watanabe1; S. Hironaka2; K. Matsuo3 / 1Fujita Health University, Japan; 2Niigata University, Japan; 3Showa University, Japan
Introduction: Electrical microstimulation of glossohyaryngeal and superior laryngeal nerves induce swallowing in rats. Based on this, the

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The purpose of this study was to determine whether pharyngeal electrical microstimulation (PEMS) induced a desire to swallow in humans, and whether age affected the intensity of stimulation to elicit this response.

**Material & Methods:** Subjects were 15 healthy young adult men (median, 28 y) and 7 healthy elderly (M3 and F4; median, 67 y). The PEMS probe was inserted nasally and fixed to the pharyngeal wall. The pharyngeal mucosa was stimulated by PEMS with two frequencies: 10 and 15 Hz. The intensity of stimulation was increased from 0.2 to 2.5 mA until subjects wanted to swallow, which intensity was defined as the desired swallowing threshold (Dsw-Th [mA]). Moreover, we defined the stimulation intensity which was detected by subjects as the perception threshold (Pe-Th [mA]). Results: Pe-Th was recognized by all subjects and was not influenced by age. At 15 Hz, Dsw-Th was significantly higher in elderly group (1.72±0.2 mA) than young group (1.13±0.3 mA) (p=0.008). Conclusions: PEMS could induce desired swallowing in healthy young adults, but the stimulation intensity to induce desired swallowing increased with age.

**PPC9. IMMEDIATE EFFECTS ON TONGUE PRESSURE AND HYOID MOVEMENT OF SURFACE ELECTRICAL STIMULATION**

K. Hori¹; K. Takahashi¹; H. Hayashi¹; J. Magara¹; T. Ono²; M. Inoue¹ / ¹Niigata university graduate school of medical and dental sciences, Japan; ²Osaka university graduate school of dentistry, Japan

Introduction: Surface electrical stimulation to the submental region is used for dysphagic patients to improve hyoid elevation though little is known about how the stimulation affects the swallowing function precisely. The aim of present study is to investigate the effects of electrical stimulation on the tongue pressure and hyoid elevation during swallowing.

Materials and Methods: Seventeen healthy young subjects received the electrical stimulation (0.2 ms duration, 80 Hz) applied to the neck surface corresponding to thyrohyoid muscles. The intensity was set at the level of maximal tolerance in each subject. Tongue pressure using sensor sheet system with five sensors and videofluorography was synchronously recorded. The subject was instructed to swallow 5-ml barium twelve times at an interval of 10 sec before, during, and after stimulation and tongue pressure and hyoid movement were compared among the conditions. Results and Discussion: The tongue pressure during stimulation was significantly decreased than before and after stimulation, and that after stimulation was significantly larger than before stimulation. The position of the hyoid at rest descended during stimulation. During stimulation, the highest position of hyoid was lower but the vertical movement was larger than those before and after stimulation. After stimulation, the hyoid at rest and at the maximum elevation positioned more superiorly than before stimulation. The deviation of the highest positions of hyoid between before and after stimulation related with the difference of the tongue pressures between before and after stimulation. Surface electrical stimulation applied to laryngeal regions during swallowing may contribute to a facilitatory effect on the hyoid elevation and the tongue pressure generally.

**PPC10. A COMPARISON OF TEXTURE AND SENSORY CHARACTERISTICS OF BEVERAGES PREPARED WITH TWO COMMERCIAL THICKENERS USED FOR DYSPHAGIA**

F. Celik¹; N. Demir²; B. Aksay²; Z.B. Demiryel¹; H.G. Ozcel¹ / ¹Hacettepe University, Faculty of Health Sciences, Department of Nutrition and Dietetics, Turkey; ²Hacettepe University Swallowing Research and Application Center, Turkey

Introduction: The prevention of aspiration and ensuring swallowing safety is the primary objective in the treatment of swallowing disorders. For this reason, increasing the consistency of thin liquids should be considered first if there is a risk for aspiration. This study was planned to compare texture and sensory characteristics of liquids prepared with two different commercial thickeners used for dysphagia therapy.

Methods: In this study 6 semi-trained panelists assessed texture and sensory characteristics of two different liquids (water and Pediasure) thickened using xanthan gum based (GB) and maltodextrin based (MB) thickeners (Nestle™Thicken Up Clear and Abbott™ Multithick) in nectar, honey and pudding consistencies. Each panelist had completed 120 minutes theoretical training (120 minutes) about food quality and 60 minutes practical training about sensory analysis at H. U. Manufacturers' instructions were followed for preparation of thickened samples. Approximately 100 mL of thickened beverage samples were served to panelists for assessment. Panelists evaluated texture (viscosity, lumpiness, grainy, slickness) and sensory (starch aromatics, metallic, sweet, bitter, sour, astringent) characteristics of a total of 14 samples by using a 6-point Likert scale. The samples were coded with a combination of three-digit letters and numbers before serving to avoid misleading. In the first session, 7 samples of water were given randomly. After a one-day break the same procedure was repeated for enteral formula in the second session. Paired t-test was used for comparison of thickeners and significant differences were determined at p<0.05. The base beverage scores were used as references and they were not included in the analysis.

Results: The mean scores of texture and sensory assessment for each thickened beverage are shown in Tables 1 and 2. Viscosity of beverages prepared with MB thickener was significantly higher than the beverages prepared with GB thickener in all consistency levels. MB thickener produced a grainy structure (p<0.05) and starch like taste (p<0.05) in both beverages. Although thickeners mixed well, MB thickener left more lumps in enteral formula than GB thickener (p<0.05).

**PPC11. PREVALENCE OF OROPHARYNGEAL DYSPHAGIA IN THE NETHERLANDS: A TELEPHONE SURVEY**

B. Kertscher¹; R. Speyer²; E. Fong³; A.M. Georgiou³; M. Smith⁴ / ¹RehaWintertur, RehaClinic, Zurzach, Switzerland; ²School of Public Health, Tropical Medicine and Rehabilitation Sciences, James Cook University, Towns, Australia; ³School of Health & Social Welfare Professionals, Higher Technological Educational Institute of Pelop, Greece; ⁴School of Public Health, Tropical Medicine and Rehabilitation Sciences, James Cook University, Town, Australia

Introduction: Recent and specific data on the prevalence and/or incidence of oropharyngeal dysphagia in the general population is scarce. This study focuses on obtaining this data by means of a literature review and telephone survey. Material & Methods: A literature review was performed to obtain data on the prevalence of dysphagia in the general population. Secondly, a telephone survey using the functional health
status questionnaire EAT-10 was conducted with the aim of establishing prevalence data on oropharyngeal dysphagia in the Netherlands. Results: The literature review revealed six articles, which met the inclusion criteria. The prevalence data on oropharyngeal dysphagia in the general population varied between 2.3% and 16%. For the telephone survey, a total of 6700 individuals was contacted by telephone, of which, 2600 (39%) participated in the study. Of the 2600 participants, 219 were identified as having swallowing abnormalities and showed increased risk of oropharyngeal dysphagia with age. The EAT-10 outcome data of a total of 219 participants (8.4%) indicated at swallowing abnormalities and showed increased risk of oropharyngeal dysphagia with age. Conclusions: The telephone survey found the prevalence data on oropharyngeal dysphagia in the Dutch general population to be 8.4%. This data is in line with the retrieved prevalence data from the literature.

PTC1. VIDEOFLUOROSCOPIC SIGNS AND PATHOPHYSIOLOGY OF IMPAIRED SWALLOW RESPONSE IN OLDER PATIENTS WITH IMPAIRED UPPER ESOPHAGEAL SPHINCTER OPENING, ZENKER’S DIVERTICULUM, OR CRICOPHARYNGEAL BAR
M. R. Zavala-Solares1; L. Rofes2; V. Arreola3; P. Clavé4 / 1Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zubirán, Mexico; 2Centro de Investigación Biomedica en Red de enfermedades hepáticas y digestivas (CIBEREd), Instituto, Spain; 3Centro de Investigación Biomedica en Red de enfermedades hepáticas y digestivas (CIBEREd), Instituto, Spain; 4Unit d’Exploracions Funcionals Digestives, Departament of Surgery, Hospital de Mataró, Universitat, Spain
Background: Impaired upper esophageal sphincter (UES) opening is a common videofluoroscopic (VFS) finding in older patients with oropharyngeal dysphagia (OD), patients with cricopharyngeal bar (CPB) and patients with Zenker’s diverticulum (ZD). Aim: To assess the associated VFS signs of impaired safety and efficacy of deglutition and the mechanisms of impaired swallow response in patients with ZD, CPB and patients with impaired UES opening. Patients and methods: We studied 126 subjects: a) 12 healthy young volunteers (40.2±2.5 yr); b) 10 older healthy volunteers (75.8±3.1 yr; c) 15 patients with OD and ZD (73±11 yr); d) 62 patients with OD and CPB (77±10 yr); and e) 35 patients with OD and impaired UESO without CPB nor ZD (68±18 yr). Clinical records were examined and videofluoroscopic (VFS) signs of safety and efficacy of swallow and timing of oropharyngeal swallow response (OSR) were measured in each patient during 5mL nectar swallows. Results: The most frequent dysphagia-related pathologies in each group were stroke in CPB group (30%), ageing more than 70 years in ZD group (60%) and Parkinson’s disease in UESO group. Table 1 shows the VFS signs of efficacy and safety in the groups and timing of swallow response among groups. * p<0.05 vs YHV; # p<0.05 vs EHV. Conclusions: Although the duration of UES opening is reduced in all these group of patients, they present different VFS patterns: a) The timing of airway protection (LVC) is preserved in patients with ZD and this is associated to low prevalence of aspirations; b) increased frequency of aspirations was present in the UESO group associated to delayed LVC time. Weak bolus propulsion is highly prevalent in CPB and UESO patients. These findings should be used to develop specific treatments for each.

PTC2. PHARYNGOESOPHAGEAL SEGMENT IN LARYNGECTOMIES
B. Arenaz Bua; R. Olsson; R. Rydell; O. Ekberg; M. Bülow / Skane University Hospital, Sweden
Introduction: Breathing, swallowing and phonation are vital functions. Laryngeal cancer may lead to total laryngectomy and then all these functions need to be restored, which is a clinical challenge. Tracheoesophageal (TE) speech is currently the most common method for vocal rehabilitation after a total laryngectomy. A puncture between the trachea and the oesophagus is made and voice prosthes is placed in the TE fistula, and when the laryngectomee covers his stoma, the air from the lungs is shunted through the voice prosthesis and into the oesophagus for voice production. The vibrating segment in TE speech, used as voice source, mainly consists of the muscles situated in the link between the lower part of the pharynx and the upper part of the oesophagus, the pharyngoesophageal segment (PES). Materials and Methods: This is a prospective study in order to examine PES during swallowing and phonation in laryngectomized patients with videomanometry: simultaneous high-resolution manometry and video-fluoroscopy, and during phonation with high-speed camera (HSC). Results: We will report results of voice perceptual assessment, videomanometry and endoscopic HSC examinations. Discussion: We will discuss how HSC and videomanometry may contribute to a better knowledge of PES in laryngectomized patients and how this knowledge may lead to improved diagnosis, successful treatment, better quality of live and optimization of resources.

PTC3. WHAT IS THE IMPACT OF DYSPHAGIA ON NUTRITIONAL AND FUNCTIONAL STATUS AMONG HOSPITALISED ELDERLY PATIENTS?
C. Venturini; C. Cola; R. Basile; D. Fagnani; N. Giorgini; D. Sparvoli; N. Jukic Peladic; P. Orlandoni / INRCA-Clinical Nutrition Department, Italy
Introduction: Chewing and swallowing disorders are common among frail elderly but often underdiagnosed. We aim to evaluate the prevalence of dysphagia among hospitalized elderly patients and its impact on nutritional and functional status. Materials & Methods: A cross-sectional study was carried out. All patients hospitalized at the Geriatric Hospital INRCA (Italy), were subjected to a nutritional assessment and dysphagia screening (3-oz water test+Pulse Oximeter). Anthropometric and functional evaluation included weight, height, Body Mass Index (BMI), % weight loss, calf circumference, blood tests, pressure ulcers (PU) and hydration state. Nutritional habits, dietary intake, use of Texture Modified Diets (TMD), Thickened Liquids (TL) or Artificial Nutrition (AN) were investigated. Results: 136 patients (mean...
POOR PROGNOSIS IN HOSPITALIZED ELDERLY INDIVIDUALS

PTC4. RELATIONSHIPS AMONG DYSPHAGIA, MALNUTRITION, AND POOR PROGNOSIS IN HOSPITALIZED ELDERLY INDIVIDUALS

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Introduction: As oropharyngeal dysphagia increases the risk of malnutrition and poor prognosis in hospitalized elderly individuals, we performed a cross-sectional cohort study of hospitalized patients to investigate the relationships among dysphagia, malnutrition, and poor prognosis. Material and Methods: Our single hospital cohort consisted of all inpatients over 18 years of age staying at our institution from November 8th to 14th, 2012. Inpatient ward nurses collected data on dysphagia, nutrition, and systemic diseases using written questionnaires. The datasets of 1084 patients were collected in the analysis. We divided the cohort into three age groups (under 65 years, 65 to 74 years, and over 75 years) and examined whether dysphagia or advanced age affected nutritional status (BMI, serum albumin, or total calorie intake), length of stay (LOS), or prognosis. Results: In patients with dysphagia, lower values were recorded for all indicators of nutritional status, LOS was longer, and the survival rate at discharge was significantly poor among all age groups. BMI and serum albumin were also lower in patients over 75 years of age. Conclusions: Age and dysphagia have significant associations with malnutrition and extended LOS in hospitalized individuals. Particularly, dysphagia has a strong relationship with survival rate at discharge regardless of age. Our findings indicate a need for timely detection of dysphagia and malnutrition in hospitalized individuals to improve prognosis.

PTC5. WHAT IS THE IMPACT OF DYSPHAGIA ON THE DEVELOPMENT OF MALNUTRITION IN A POPULATION OF NON HOSPITALIZED ELDERLY PATIENTS AFFECTED BY NEUROLOGICAL DISEASES?

C. Venturini\textsuperscript{1}; D. Fagnani\textsuperscript{1}; C. Cola\textsuperscript{1}; N. Giorgini\textsuperscript{1}; D. Sparvoli\textsuperscript{1}; R. Basile\textsuperscript{1}; P. Orlandoni\textsuperscript{1}; G. Pelliccioni\textsuperscript{1}; N. Jukic Peladic\textsuperscript{3} / \textsuperscript{1}IRCA-Clinical Nutrition Department, Italy; \textsuperscript{2}IRCA-Neurology Department, Italy; \textsuperscript{3}IRCA-Clinica Nutrition Department, Italy

Introduction: Dysphagia is a risk factor for malnutrition among hospitalized elderly and impacts negatively clinical outcomes. The aim of this study is to estimate the prevalence of swallow disorders and their correlation with nutritional issues among non hospitalized geriatric patients affected by neurological diseases. MATERIAL & METHODS Retrospective study of neurological geriatric out-patients visited in Clinical Nutrition Unit during 2013. Nutritional assessment was carried out by anthropometric (weight, height, BMI, calf circumference) and biochemical data (albumin, prealbumin) and food diaries. Dysphagia was assessed by Gugging Swallowing Screen (GSS) trough administration of different textures (from fluid to solids) and O2 saturation was monitored by pulse oximetry in order to detect silent aspiration. Results were scored by Dysphagia Outcome Severity Scale (DOSS). RESULTS 128 patients (pt) (70 F 58 M) aged 82,47±9-8.60 were enrolled; 63 % affected by Alzheimer and 37 % by Parkinson disease. 48% were institutionalized, 46% had comorbidities.57% of pt (73) were diagnosed dysphagic (D) from 2 (Severe ) to 5 (Mild ) of DOSS scale. Dysphagia was more frequent among institutionalized pt (p=0.05). 52,3% of pt presented malnutrition that was significantly higher among D patients (50,6% D vs. 34,8% of ND p= 0,05). Diet modifications were necessary for 45 D pt (61,6%) and consisted mainly by prohibition of drinking liquids by mouth and introduction of thickened liquids (47,8%), oral supplements (21,8%), texture modified diets (13,8 %) and Artificial nutrition (8,9 %). CONCLUSIONS Dysphagia is a frequent symptom among old neurological out-patients but often undiagnosed and brings to malnutrition. Energy-protein and water content of texture modified diets as to be tightly monitored as well as nutritional status of dysphagic pt.
some consideration to engaging in social activities, and sometime they choose not to participate in social activities because of the dysphagia.

PTC7. MANAGEMENT OF A PROTOCOL OF RISK GROUPS FOR BRONCHOASPIRATION AT A GENERAL HOSPITAL IN SÃO PAULO, BRAZIL.
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1 Universidade Federal De Santa Catarina, Brazil; 2 IG, Brazil; 3 Faculdade Assis Gurgacz, Brazil

Introduction: Pneumonia is an inflammatory condition of the lung parenchyma, a result of the infectious or inflammatory process. The close relationship between deglutition changes and predisposition to recurrent bacterial pneumonias and their association with neuromuscular disorders have been constant subject of study in research. For that reason, there is a need to institutionalize a protocol for identifying early risks so as to prevent the increase in morbidity and death rate. The purpose of this study is to describe and characterize patient management in the institutional protocol of bronchoaspiration affecting patients admitted to the Intensive Care Unit (ICU).

Methodology: Transversal study, the medical history of 142 patients admitted to the ICU were analyzed and included in the institutional protocol of bronchoaspiration at a General Hospital in Sao Paulo, Brazil. Results: Prior to phonaudiological assessment, 39,43% of the patients presented support for alternative feeding route and 60,56% were fasting or were released of the alternative feeding way. In relation to the Function Oral Intake Scale (FOIS), 66,19% patients had their FOIS≤3; and 33,80% FOIS≥4. Of the patients assessed, 19,71% were being treated by a speech pathologist before the protocol was applied. After its application, 27,46% of the patients were qualified into phonaudiological follow-up. After phonaudiological assessment, 54,22% remained at FOIS≤3; and 45,77% FOIS≥4. Discussion: The objective of drawing up a protocol is to keep and/or improve what is being offered, besides providing the application of the acting concept based on evidences. This enables the outline of risk population and maximization of early care, guaranteeing a better therapeutic approach as well as rehabilitation and prevention of clinical complications.

PTC9. A TOOL TO FACILITATE THE CHOICE OF TEXTURES FOR SWALLOWING DISORDERS.
D. Bleeckx / Grand Hôpital de Charleroi, Belgium
Purpose: The prevalence of dysphagia, found in both pediatric and adult populations (22.6% in primary care patients following Wilkins T., Gilleys RA and col.), requires the elaboration of adapted tools allowing the management by an unspecialized medical team before the clinical assessment by deglutologist is done. The table which we propose aims to facilitate the choice of the most suitable texture according to the signs and symptoms of dysphagia observed, with a minimum of risks for the patient. Methods: We are regularly confronted with complications like “aspiration pneumonia” which increase the length of stay and the hospital costs, and reduce prognosis to survival and quality of life. To avoid these complications, we created a tool to drive the nursing staff of first line in the appropriate choice of dietary for the oral intake. The aim is to anticipate the clinical assessment by a medical specialist, to limit the irreversible malnutrition of the elderly. The proposed table includes a list of signs and symptoms classified following the phases of swallowing. It takes into account their impact on the function. The colours inform about the risk of oral intake (red colour means the most dangerous). The conclusion leads to five levels of density for liquids and six adapted solid textures. The document also resumes some basic ground rules for the follow-up of the dysphagic patient. Results: The observation of simple clinical signs, revealing the difficulty of oral intake, allows the choice of adapted modified textures. For that purpose, it is necessary to realize, with dietitians, specification sheets to clarify the classification of solids and liquids in a standardized way. The training and the definition of the authorized staff to use this table is essential.

PTC10. THICKENING WITH POWDER THICKENERS AND THE SALIVARY ALPHA-AMYLASE REACTION: MYTH OR REALITY?
E. Brito-de la Fuente; N. Staudinger-Prévest; J.M. Mainou-Sierra; G. Assegehegn; C. Gallegos / Fresenius Kabi Deutschland GmbH, Germany

Introduction: Starch-rich boluses with different consistencies prepared from powdered thickeners and/or normal food are part of the dietary management of dysphagic patients. There is a risk of consistency/viscosity lost that may compromise a safety swallowing. We hypothesized that this effect is dependent on the mouth mixing environment and thus it may be relevant to the clinical practice. Materials and Methods: One
that the kinetics of the salivary alpha-amylase reaction is dependent on
tions, a comparative analysis with data from literature clearly suggests
initial viscous flow behaviour of the product. For starch-based prepara-
ations. Discussion: The a-amylase addition to the Fresubin®
consistencies. Clear Thickener powdered thickened formulations does not modify the
thinning viscous flow behaviour before and after a-amylase addition.
Results: All Fresubin® Clear Thickener formulations showed shear-
proprietary formulation (Fresubin® Clear Thickener) was characterized
in terms of viscous flow behaviour. Small amounts of α-amylase (ac-
cording to previously reported protocols) were added to different con-
sistency preparations in an ad-hoc mixer rheometry tool and the evolu-
tion of torque with the elapsed mixing time was monitored constantly.
The viscous flow behaviour of the bolus was then characterised. Prepa-
ations from a commercial food starch powder were used as reference.
Results: All Fresubin® Clear Thickener formulations showed shear-
The viscous flow behaviour of the bolus was then characterised. Prepa-
ration of torque with the elapsed mixing time was monitored constantly.
The viscous flow behaviour of the bolus was then characterised. Prepa-
ations from a commercial food starch powder were used as reference.
Results: All Fresubin® Clear Thickener formulations showed shear-

PTC11. SUSTAINED SWALLOWING-IMPROVING EFFECT OF CARBON-
ATED BEVERAGE IN ELDERLY INPATIENTS

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cal Corporation, Japan

Introduction: Carbonated beverages have been reported to promote
swallowing movement through stimulating the oral cavity and pharynx.
The objective of this study was to compare the duration of the swallow-
ing-improving effect of a carbonated beverage among ingestions of vari-
ous volumes of the beverage to collect basic information aiming at its
application for dysphagia patients. Materials & Methods: The subjects
were 8 elderly inpatients with no problems with swallowing and cogni-
tive functions (mean age: 84.0±/-8.2 years). The subjects swallowed 5
mL of tap water before ingesting 5, 10, 20, or 30 mL of a carbonated
beverage and every minute after ingestion of the carbonated beverage
for 5 minutes. The muscle contraction time, peak muscle activity,
and root mean square were determined from the electromyography of
the suprahyoid muscles, and the duration of laryngeal elevation was
measured using a strain gauge while swallowing. On statistical anal-
ysis, the volume and time of swallowing the carbonated beverage were
analyzed employing two-way repeated measures analysis of variance.
Results: The duration of laryngeal elevation after swallowing 30 mL of
the carbonated beverage was significantly shorter for 5 minutes than
that (1.03±/-0.56 seconds) before swallowing. No significant shorten-
ing was noted after swallowing of any other volume of the carbonated
beverage. The muscle contraction time while swallowing 30 mL of the
carbonated beverage was significantly shorter than that (1.00±/-0.17
seconds) before swallowing. No significant change was noted in any
other item. Conclusions: The shortening of laryngeal elevation contin-
ued after swallowing another beverage following carbonated beverage
ingestion, suggesting that the swallowing movement-promoting effect
is sustained.

PTC12. SWALLOWING REHABILITATION AFTER TOTAL HUMAN FACE
TRANSPLANTATION

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University Faculty of Medicine, Dept. of Plastic Surgery, Turkey

Introduction: The face is the physical foundation of human identity
and has a major role in social interactions. Facial affections due to
traumatic, inborn, or acquired reasons expose a person to the stigma
of being different. Composite tissue allografts create a new era in hu-
man transplantation. After face transplantation, many complications
may occur. In our case, we aimed to show the swallowing function and
rehabilitation results. Materials and Methods: Fiberoptic endoscopic
swallowing evaluation(FEES) was used in swallowing evaluation. The
mimic functions were evaluated by Facial Grading Scale(FGS) and Facial
Disability Index(FDI). The program was started postop 3 day. Case: 25
years old male who had serious scars on his face as a result of fire
when he was 2 years. The donor who died in a traffic accident was 40
years old. The transplantation surgery took 4 hours. Swallowing dif-
ficulty and paralysis on one side tongue were determined after 2 day
of surgery. The improvement of swallowing function and rehabilitation
were below day to day. 0-48 hours: He had severe edema on his face.
The first FEES showed that there was severe aspiration(PAS:9) and no
vocal cord movement. He was fed by nasogastric tube. 48 hours-7 days:
Therapy program started with superficial facial massage, thermal tac-
tile stimulation, head and neck mobilisation, functional lip, tongue and
vocal cord exercises, posture and breathing exercises, neuromuscular
electrical stimulation. 7 day: Nonoral feeding continued. 1-3 week:
Resistance exercises and Shaker exercises added. 3 week: Edema on
face decreased. Mimic functions in lips and eyebrows started(FGS:15,
FDI:0,095 ). 6 week: Liquid restricted oral diet was started gradually.
The program was still continued. 2 month: Mimic functions became
close to normal(FGS:50, FDI:0,75 ). 3 month: Full oral feeding and facial
function were achieved. Discussion: Swallowing disorders often occur
after head and neck surgery. Difficulties in swallowing function was
also seen. Intensive and well-designed therapy program will be useful
in swallowing disorders due to the nature and potential complications
of surgery.
PTC14. THE EFFECTIVENESS OF MULTIDISCIPLINARY TEAM IN SWALLOWING REHABILITATION

P. Wattanapan1; R. Chobchuen2; S. Saentaweesook1 / 1Department of Rehabilitation Medicine, Khon Kaen University, Thailand; 2Rehabilitation ward, Srinagarind Hospital, Khon Kaen, Thailand

Introduction: Dysphagia is the common problem in stroke patient leading to many complications such as aspiration pneumonia, malnutrition including increasing in hospital length of stay. The instrumental assessment is widely used to improve functional outcome in stroke patients. Multidisciplinary team approach in dysphagia (MTID) was developed in Srinagarind hospital, Khon Kaen University in 2012. Bedside evaluation, instrumental evaluation, treatment, patient and caregiver counseling has been integrated to patient care process. This study aimed to evaluate the effectiveness of multidisciplinary team approach in swallowing rehabilitation. Materials & Methods: The stroke patients admitted in rehabilitation ward, Srinagarind hospital during January 2011- December 2013 were enrolled. All participants were evaluated eating status on admission and discharge using Functional Oral Intake Scale (FOIS). Results: Two hundred fifty-two stroke patients were recruited. Of these, 58 patients had swallowing problem. There was no significant difference in FOIS on admission. The improvement rate in FOIS at discharge was 55% and 85% for the pre- and post- MTID program implementation respectively (p=0.02). Conclusions: After the implementation of multidisciplinary team approach in swallowing rehabilitation, there was improvement of eating status in patient with swallowing problem. Continuum care process is needed to improve quality of care. However, further study should assess quality of life, nutritional status and long term follow up to improve the quality of care.

PTC15. IS SALIVA REDUCTION IN ALS PATIENTS WITH DROOLING AND SEVERE DYSPHAGIA STILL BENEFICIAL?

J.G. Weikamp; J.G. Kalf / Radboud University Medical Center, Netherlands

Introduction: Drooling is a physically and socially distressful symptom that occurs in about 50% of the patients with amyotrophic lateral sclerosis (ALS). Radiotherapy (RT) and injections with botulinum neurotoxin (BoNT) are effective to reduce saliva production, but which is better in cases of severe drooling caused by severe dysphagia? Materials & methods: ALS patients with severe drooling were randomized to treatment with BoNT-A or RT. Drooling status (Drool Rating Scale; DRS) global rate of change of drooling and satisfaction with treatment, were assessed at baseline, 4, and 12 weeks after treatment to evaluate subjective treatment effect. Treatment outcomes were correlated with dysphagia severity measured with the ALS severity scale swallowing score (ALS-SSS). Results: Twenty patients with ALS (13 women) and drooling were randomized to treatment with BoNT-A (n=10) or RT (n=10), in the course of 5 years. All outcomes were similar between treatments after 4 and 12 weeks. However, more severe dysphagia (12/20 patients had a gastrostomy tube) was strongly correlated with a lower global rate of change of drooling (r = 0.73; p = 0.00) and a lower satisfaction with treatment (r = 0.65; p = 0.01) at 4 weeks and a lower global rate of change of drooling (r = 0.68; p = 0.01) at 12 weeks after treatment, independently of treatment. Conclusions: RT and BoNT have similar effects on drooling severity, but ALS patients with severe dysphagia seem to have less benefit from either treatment. Consequently, saliva reduction in ALS patients with drooling and severe dysphagia might not be beneficial.

PTC16. VARIATION IN LIKING AND PALATABILITY OF GUM AND STARCH THICKENED FLUIDS

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Introduction: Use of thickening agents is a commonly used compensatory technique in dysphagia management. Reduction in palatability, hydration and lack of stability in viscosity have been noted with starch based thickeners. Gum based thickeners have been introduced as an alternative with increased reliability in viscosity seen. A series of ongoing studies is being conducted looking at palatability and sensory attributes of drinks thickened with gum or starch using both naïve tasters and sensory panel. This report on part of this on-going work.

Method and Results Part I: Part I (n=79) considered drinks thickened to stages 1 and 2 using manufacturer’s weights of thickener. Overall liking, liking of appearance and flavour were some of the aspects considered. Overall liking ratings were significantly higher for all gum products compared to their starch counterparts. Interestingly there was no difference between liking for stage 1 and 2 for either thickener. However viscosity did not appear equivalent between gum and starch thickener at described consistencies.

Method and Results Part II Stage 1 and stage 2 drink consistencies were identified by clinician judgement from drinks made up with a range of weighed thickener(including manufacturers weights)with 75-100% agreement. The same procedure with naïve tasters was then conducted. Discussion: A difference in palatability and liking was found between gum and starch thickeners in Part I. Clinical judgement indicated that viscosity of starch thickened drinks appeared greater and outside normal clinical recommendations. A second trial is being completed using weights derived from clinical judgement for stage 1 and 2 for either thickener.

PTC17. RAPID RESPONSE NUTRITION & DYSPHAGIA SERVICE
D. Newcombe / County Durham & Darlington NHS Foundation Trust, United Kingdom
Introduction: County Durham & Darlington NHS Trust, is one of the first Speech & Language Therapy services in the UK to secure funding for, and deliver this new and ground breaking format of community dysphagia Service. It differs from any other UK service in that the team comprises of Highly Specialist Speech & Language Therapists, a whole time Dietitian and a training programme for care home staff delivered jointly by the therapist(s) and Dietitian.

PTC18. VISCOSITY AND TEXTURE MODIFIED BEVERAGES AND JUICES SUITABLE FOR DYSPHAGIA PATIENTS
H. Jenzer; A. Rufener; L. Sadeghi / Bern University of Applied Sciences, Switzerland
Introduction: Dysphagia patients are at risk of protein-energy-ontrition or dehydration as well as non-compliance with pharmacotherapy. Thus, medicines and meals textures should meet the needs of that special patient group.

Materials and Methods: Gellan gum (E418, a polysaccharide from brown algae), gelatin (E441, bovine) or sodium alginate (E401, a fermented polysaccharide from Pseudomonas elodea) were used to obtain semi-solid preparations of a selection of beverages and juices fitting in a suitable viscosity range. The target viscosity was controlled using a Brookfield R/S+ rheometer equipped with a Vane spindle 40/20.

Results: A multi-disciplinary focus group of physicians, pharmacists, dieticians and speech therapists recommend a thick puree or pudding-like consistency, being able to keep its shape and not requiring mastication. This is a generally accepted viscosity range of 1600 < regular< 2300 (cP = mPa*s, at 20°C).1 2

Gellan gum at a final concentration of 2 (m/V)% is the most suitable expipient in many aqueous liquids and yields a semi-solid in the target viscosity range mashable at the hard palate (e.g. 2260 mPa.s in milk). Sugar sweetened beverages (e.g. cola) become more viscous (8500 to 12300 mPa.s, would require mastication), fruit and vegetable juices less (8250 to 600 mPa.s, syrup or nectar consistency not holding its shape).

Discussion: Gellan thickened liquids are suitable for dysphagia patients and can be cut into slices adapted to meals and/or to prescribed drug doses. Gellan gum is much easier to handle than sodium alginate or gelatin, as it only requires heating to 50°C and cooling to 2-8°C for 1 hour until gelification. Gellan formulations without starch are not sensitive to amylase and thus have no aspiration risk due to an undesirable thinning effect.

PTC19. RANDOMISED CONTROL PILOT TRIAL EVALUATING THE AMP-CARE ESP (EFFECTIVE SWALLOWING PROGRAMME) FOR TREATMENT OF DYSPHAGIA POST STROKE.
L. Sproson; S. Pownall; P. Enderby; J. Freeman / 1Sheffield Teaching Hospitals NHS Foundation Trust, United Kingdom; 2School of Health And Related Research, Sheffield, United Kingdom; 3Leeds University, United Kingdom

Introduction: Acquired dysphagia affects many different patient groups and is associated with increased mortality, longer hospital stay, pneumonia, reduced quality of life and significant NHS costs. Dysphagia care post stroke currently tends to focus on modification of diet and fluid textures and adapted posture to manage symptoms, rather than direct rehabilitation of swallow function. There is currently limited use of technology, as although a variety of potential treatments are being
investigated, there has been insufficient consensus in the evidence to justify incorporation into clinical practice. Transcutaneous electrical stimulation is an example of a promising new technology; however there is much controversy over its efficacy as previous research findings have been conflicting. Therefore, there is an urgent need for robust clinical trials to clarify evidence to guide clinical practice. Method: This 30 patient pilot RCT evaluates a new device (AMPCARE ESP) using new parameters, electrode design and placement. Stimulation is combined with specialised laryngeal exercises, performed against the resistance of a new, specially designed postural device. Patients in the treatment arm receive treatment 5 days a week for 4 weeks. Patients in the control arm receive usual care. Results: The study is in progress. So far 18 participants have completed their respective arms and data shows very positive trends. In October we will be able to present full findings for the first time. Outcome measures include: Functional Oral Intake Scale, Rosenbek Penetration-Aspiration Scale, blinded videofluoroscopy and qualitative data. Discussion: Implications for clinical practice, appropriate patient selection, treatment intensity and economic implications will be considered.

PTC20. THE NEW NATURAL BLENDERIZED FOOD RECIPE FOR TUBE FEEDING
S. Muskikoonleet; R. Chobchoon; P. Wattanapana; C. Nuntcharuksa; A. Srikan; N. Sangjuan / Faculty of Medicine, Khon Kaen University, Thailand
Introduction: Nasogastric (NG) tube is common route of feeding in stroke patient with swallowing problem. Size of tube has an effect on both patient and food passage. Therefore, the rehabilitation team in Srinagarind hospital, Thailand changed the feeding tube size from 14 gauge to 12 gauge feeding tube to improve quality of care in stroke patient with swallowing problem. Both commercial and blenderized diets are used as diet for feeding tube. However, the former blenderized diet could not use with the small bore feeding tubes, large particle could cause tube obstruction. Therefore, the new recipe of blenderized diet was developed to solve such problems. Materials&Methods: The nutritionist developed the new recipe of blenderized which consist of low fat pasteurized milk, egg, sugar soy bean oil, papaya and chicken. The new diet was analyzed the nutritional properties. After that, the new blenderized diet was introduced to 10 patients who received diet via small bore feeding tubes. The feeding time, event of tube obstruction was recorded. Results: The new natural blended diet contained more energy with less carbohydrate, fat and sugar than in the former recipe. The average feeding time for the new recipe was shorter than the traditional recipe (5 minute versus 30 minute for 300 ml.) There was no event of tube obstruction for new recipe. Conclusions: The new blenderized recipe could be used for small tube feeding. The nutritional properties of new recipe meet the requirement. However, we did not evaluate the long term effect of this recipe on nutritional status and the application at home.

PTC21. EFFECTS OF RESPIRATORY INTERVENTION (‘BAGGING’) ON RESPIRATION AND DEGLUTITION IN TRACHEOTOMISED PATIENTS
U. Frank1; K. Frank2; H. Zimmermann³ / 1 University of Potsdam, Germany; 2 Ev. KH Bielefeld, Gilead, Germany; 3 Aaiaklinik Bad Wuennenberg, Germany
Introduction: Tracheotomised patients often suffer from limited mucociliary clearance, increased respiratory rates and limited saliva management. Previous research suggests a close interaction of respiratory and swallowing function (Martin-Harris 2008). We analysed the effects of a specific respiratory intervention method for tracheotomised patients (‘bagging’) on the following parameters: PCO2, PO2, SPO2, respiratory rate, minute volume, swallowing frequency, vigilance and viscosity of secretions. Methods: The ‘bagging’ method implies insufflations of air into the lungs with a resuscitation bag and subsequent manual support of coughing. By this, secretolysis and the expectation of secretions are enhanced. 30 tracheotomised patients received daily bagging-interventions for 3 weeks. All patients had a pre-treatment swallowing frequency of < 1/min and a history of pneumonia infections. Data was obtained in a multiple baseline design with two pre-treatment, two post-treatment baselines and a follow-up measure 3 weeks after treatment. Results: After the treatment period we found significant improvements of P02 (Z = -4.270, p < .001), SPO2 (t(29) = 16.24, p < .001), respiratory rates (t(29) = -9.69, p < .001), swallowing frequency (Z = -4.710, p < .001) and vigilance (Z = -4.706, p < .001). Viscosity of bronchial secretions was improved. All intervention effects persisted at follow-up measurement. Changes in minute volume and PCO2 failed to reach significance. Discussion: The bagging method had positive effects on respiratory and deglutition parameters and on vigilance in tracheotomised patients. This easy-to-learn and inexpensive technique may expand the range of treatment options for this patient group.
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The link between dysphagia and malnutrition
Prof. Cornel Sieber, Germany

The benefits of nutritional support
Prof. Alessandro Laviano, Italy

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