



6th ESSD CONGRESS

MILAN 14-15 OCT 2016

*Deglutology: from science
to clinical practice*

WORKSHOPS 12 OCT 2016

PRECONGRESS COURSE 13 OCT 2016

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Dysphagia

Dedicated to advancing the art and science of deglutology

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FRIDAY OCTOBER 14

08:30- 09:00

Session 01. Neurophysiology: Electromyography/fMRI for the study of swallowing

Chairs: S. Hamdy, I. Battel - Speakers: E. Alfonsi, E. Michou

09:00 - 10:30

Session 02. Free papers 1: Screening and clinical assessment of OD

Chairs: Y. Inamoto, E. Michou

- 02.01 WATER SWALLOW TEST AND EAT-10 ARE INADEQUATE TO SCREEN DYSPHAGIA IN PATIENTS WITH STEINERT DISEASE
A. Schindler; M. Zardoni; B. Pasanisi; C. Nascimbene; R. Lorusso; D. Ginocchio; L. Maggi; M. Osio.
- 02.02 EATING ASSESSMENT TOOL-10 PREDICTS ASPIRATION IN ADULTS WITH RESPIRATORY DISEASE
J. Regan; S. Lawson; V. De Aguiar
- 02.03 MEALTIME ASSESSMENT SCALE (MAS): DEVELOPMENT AND VALIDATION OF A SCALE FOR MEAL ASSESSMENT
D. Valentini; N. Pizzorni; M. Gilardone, E. Borghi, M. Tresoldi, F. Mozzanica, A. Schindler
- 02.04 INTERNATIONAL STANDARDIZATION OF THE TEST OF MASTICATING AND SWALLOWING SOLIDS IN CHILDREN (TOMASS-C)
L. van den Engel-Hoek; D. Nogueira; U. Frank; M. Huckabee
- 02.05 INTER-RATER RELIABILITY OF THE DYSPHAGIA OUTCOME AND SEVERITY SCALE (DOSS): EFFECTS OF SLT EXPERIENCE, AUDIO-RECORDING AND TRAINING
A. Zarkada; J. Regan
- 02.06 CLINICAL ASSESSMENT OF EFFORTFUL SWALLOW PERFORMANCE; INTER-RATER RELIABILITY AND COMPARISON TO SURFACE ELECTROMYOGRAPHY DATA
S.K. Archer; C.H. Smith; D.J. Newham
- 02.07 RELATIONSHIPS AMONG NUTRITION STATUS, ORAL FUNCTIONS AND BODY FUNCTIONS IN ADVANCED CANCER PATIENTS
H.T. Taniguchi; K.M. Matsuo; K.N. Nakagawa; M.K. Kanazawa; J.F. Furuya; S.M. Minakuchi

02.08 EVALUATING THE RELIABILITY AND VALIDITY OF THE SWALLOWING QUALITY OF LIFE QUESTIONNAIRE USING RASCH ANALYSIS
R. Cordier; R. Speyer; A. Schindler; S. Hamdy; E. Michou; B.J. Heijnen, L.W.J. Baijens; A. Karaduman; A. Joosten

02.09 HEALTH-RELATED QUALITY OF LIFE IN DYSPHAGIA
R. Speyer; E. Jones; B. Kertscher; D. Denman; K. Swan; R. Cordier

10:30 - 11:00 **Coffee break**

11:00 - 11:30 **Session 03. Evidence in Screening application**

Chairs: M. Walshe, K. Van Hulst – Speakers: J. Arvedson, R. Speyer

11:30 - 12:30 **Session 04. Free papers 2: Instrumental assessment and dysphagia diagnosis**

Chairs: D. Farneti, R. Dziewas

04.01 PRESSURE FLOW ANALYSIS AS A METHOD TO ASSESS ESOPHAGEAL FUNCTION
C. Scheerens, T. Omari, C. Broers, J. Tack, N. Rommel

04.02 THE INFLUENCE OF AGE CATEGORY, GENDER, LOCATION, VOLUME, EFFORT AND CONSISTENCY ON PERCENTAGE OF MAXIMAL LINGUAL SWALLOWING PRESSURES (PSP) IN HEALTHY BELGIAN ADULTS
J. Vanderwegen, G. Van Nuffelen, C. Guns, R. Elen

04.03 INFLUENCE OF PHARYNGEAL PROPULSIVE FORCES ON PREDICTIVE ABILITY OF INTRABOLUS PRESSURE TO IDENTIFY STRICTURES OF THE PHARYNGO-OESOPHAGEAL JUNCTION
M.M. Szczesniak; P. Wu; J. Maclean, T. Zhang; T. Omari; I.J. Cook

04.04 EFFECT OF AGE, GENDER, VOLUME AND CONSISTENCY ON WHITE-OUT DURATION IN HEALTHY SUBJECTS
R. Lorusso; T. Zambon; F. Mozzanica; A. Schindler

04.05 CLINICIAN RATINGS OF RESIDUE ON FEES: YEARS OF EXPERIENCE DOES NOT AFFECT RATINGS
J.M. Pisegna; A. Kaneoka; J.C. Borders; S.E. Langmore

04.06 QUANTIFYING VALLECULAR RESIDUE ON FEES AND MBS VIDEOS
J.M. Pisegna; W.G Pearson; M.B. O'Dea; E. McNally; R. Scheel; S.E. Langmore

12:30 - 13:00 Session 05. Swallowing viewed through HRM/ Combining HRM and ecography

Chairs: N. Rommel, R. Dantas – Speakers: T. McCulloch, B. Fattori

13:00 - 14:30 Lunch

13:30 - 14:30 Industry symposium S2

14:30 - 15:00 Session 06A. Poster session A: Screening and clinical assessment of OD

Chairs: D. Melgaard, G. Ickenstein

14:30 - 15:00 Session 06B. Poster session B: Instrumental assessment and dysphagia diagnosis

Chairs: D. Farneti, E. Verin

14:30 - 15:00 Session 06C. Poster session C: Dysphagia in children

Chairs: R. Zaman, L. Van Engel-Hoek

14:30 - 15:00 Session 06D. Poster session D: Physiology and neurophysiology

Chairs: E. Alfonsi, S. Hamdy

14:30 - 15:00 Session 06E. Poster session E: Dysphagia in neurodegenerative diseases

Chairs: C. Ledl, H. Kalf

15:00 - 16:00 Session 07. Free papers 3: Dysphagia after HNC treatment

Chairs: A. Nacci, A. Schindler

- 07.01 SYNK: SWALLOWING EXERCISES AND RESISTANCE TRAINING FOR HEAD AND NECK CANCER PATIENTS DURING RADIO THERAPY. A STATUS
S. Fredslund, S.O. Dalton, C. Johansen, I. Wessel
- 07.02 PREDICTIVE FACTORS FOR POSTTREATMENT SWALLOWING DYSFUNCTION AFTER RADIO(CHEMO)THERAPY FOR HEAD AND NECK CANCER
A. Goeleven, D. Nevens, F. Duprez, W. De Neve; E. Dejaeger; R. Braeken; E. Decabooter; M. De Smet; L. Lutters; S. Nuyts¹
- 07.03 FUNCTIONAL OUTCOMES AND QUALITY OF LIFE AFTER TRANSORAL ROBOTIC SURGERY IN PATIENTS WITH OROPHARYNX AND SUPRAGLOTTIC CANCER
D. Geurickx, A. Goeleven, J. Meulemans, V. Vander Poorten
- 07.04 LONG TERM RESULTS OF SUPRAGLOTTIC LARYNGOPLASTY IN TREATMENT OF CHRONIC ASPIRATION IN IRRADIATED NASO PHARYNGEAL CARCINOMA PATIENTS
P. Ku, A. Vlantis, V. Abdullah, M. Tong
- 07.05 FREE WATER PROTOCOLS FOR ADULTS WITH DYSPHAGIA: ESTABLISHING THE EVIDENCE FOR IMPLEMENTATION
B. McArdle, T. Wiesinger, C. Humphreys, M. Walshe
- 07.06 INTRA-PROCEDURAL GASTRO-OESOPHAGEAL JUNCTION (GOJ) DISTENSIBILITY MEASUREMENT PREDICTS SHORT-TERM OUTCOME OF PNEUMATIC DILATATION
M.M. Szczesniak; P. Wu; P. Craig; L. Choo; J. Engelman; B. Terkasher; J. Hui; I.J. Cook

16:00 - 16:30

Coffee break

16:30 - 17:00

Session 08. ESSD News/ Dysphagia-malnutrition interaction

Chairs: G. Ickenstein, K. Matsuo, O. Ekberg - Speakers: P. Clavé, S. Carrión

17:00 - 17:30

Session 09. Cough and other lung protection mechanisms / Oral health and lung infection correlation.

Chairs: G. Ickenstein, K. Matsuo, O. Ekberg - Speakers: P. Banfi, O. Ortega

17:30 - 18:00 Session 10. Esophageal dysphagia: examined by HRM/ and non-oncological surgery

Chairs: G. Ickenstein, K. Matsuo, O. Ekberg – Speakers: N. Rommel, L. Bonavina

18:00 - 19:00 Industry symposium S3

SATURDAY OCTOBER 15

08:00- 09:00 ESSD GENERAL ASSEMBLY

09:00- 10:30 Session 11. Free papers 4: Physiology and neurophysiology & stroke and brain damage

Chairs: R. Dziewas, E. Alfonsi

- 11.01 IS EXCITABILITY INDUCED BY REPETITIVE TRANSCRANIAL MAGNETIC STIMULATION OF THE SWALLOWING MOTOR CORTEX PREDICTED BY GENETIC PREDISPOSITION?
A.R.Z. Raginis-Zborowska; S.H. Hamdy; E.M. Michou; N.P. Pendleton
- 11.02 SWALLOWING FROZEN AND MIXED BOLUS CONSISTENCIES: KINEMATICS IN YOUNG AND OLDER HEALTHY ADULTS
K.L. Sunday; A.K. Vose; L. Greene; E. Karagiorgos; I.A. Humbert
- 11.03 PROGRESSIVE PHYSIOLOGIC FUNCTIONAL ALTERATIONS IN SWALLOWING IN CORRELATION TO AGE
A.C. Wuttge-Hannig; C.E.M. Hannig
- 11.04 CORTICAL MECHANISMS FOR THE INTEGRATION OF POSTURE AND SWALLOWING MOVEMENT: A FNIRS STUDY
M. Yamawaki; G. Matsuda; S. Shibano; I. Dan
- 11.05 THE IMPACT OF VARIOUS CONSISTENCIES ON SWALLOWING SAFETY IN NEUROGENIC DYSPHAGIA
Ledl Christian; M. Mertl-Roetzer
- 11.06 THE PREVALENCE OF PHARYNGEAL SWALLOWING DISORDERS IN PATIENTS WITH DEMYELINATING DISEASES
M. Milewska; K. Grabarczyk; T. Czernicki; D. Dziewulska; M. Panczyk; B. Jamróz; J. Chmielewska

11.07 RANDOMIZED CONTROLLED TRIAL OF TDCS FOR THE TREATMENT OF POSTSTROKE DYSPHAGIA

S. Suntrup-Krüger; C. Ringmaier; P. Muhle; T. Warnecke; R. Dziewas

11.08 A SYSTEMATIC REVIEW OF THE EVIDENCE UNDERPINNING THICKENED LIQUID RECOMMENDATIONS IN STROKE CLINICAL PRACTICE GUIDELINES

McCurtin; M. Kavanagh; C. Roche; A. Clifford; F. Murphy; J. Ryan; C. Walsh

11.09 EFFECT OF BUSPIRONE IN PATIENTS WITH INEFFECTIVE ESOPHAGEAL MOTILITY

C. Scheerens; J. Tack; T. Vanuytsel; E. De Langhe; T. Omari; N. Rommel

10:30 - 11:00

Coffee break

11:00- 11:30

Session 12. Telerehabilitation for dysphagia/Telepractice in stroke patients

Chairs: E. Verin, A. Guillen - Speakers: E. Ward, G. Ickenstein

11:30- 12:30

Session 13. Free Papers 5: Dysphagia in neurodegenerative diseases

Chairs: L. Baijens, H. Kalf

13.01 FAMILY CAREGIVERS' LIVED EXPERIENCE OF OROPHARYNGEAL DYSPHAGIA AS A PRIMARY RESULT OF MULTIPLE SCLEROSIS

K. Bree; A. Sheehy; M. Walshe

13.02 WHAT PEOPLE LIVING WITH ALS THINK ABOUT DYSPHAGIA? AN INTERPRETATIVE PHENOMENOLOGICAL ANALYSIS OF PATIENTS' AND CAREGIVERS' EXPERIENCES

D. Lisiecka; H. Kelly; J. Jackson

13.03 PILOT OBSERVATIONS FROM A MULTIMODAL IMAGING STUDY IN MILD DYSPHAGIC PATIENTS IN EARLY STAGE HUNTINGTON'S DISEASE (HD)

E. Michou; I. Trender-Gerhard; A. Gerhard; D. Craufurd; K. Herholz; S. Hamdy

13.04 ESOPHAGEAL MOTOR DISORDERS IN ATYPICAL PARKINSONIAN SYNDROMES: SYNUCLEINOPATHIES VS. TAUOPATHIES

I. Suttrup; S. Suntrup-Krueger; A. Pilatus; M. Siemer; J. Bauer; R. Dziewas; T. Warnecke

13.05 RELATIONSHIP BETWEEN DIET TYPE AND TONGUE PRESSURE IN PATIENTS WITH NEUROLOGICAL DISEASES

G. Umemoto; S. Fujioka; Y. Tsuboi; H. Furuya; H. Arahata; M. Sakai

12:30- 13:00

Session 14. Feeding children with cerebral palsy/Assessment and treatment of drooling

Chairs: L. Van Engel-Hoek, A. Wuttge-Hannig - Speakers: J. Arvedson, K. Van Hulst

13:00 - 14:30

Lunch

13:30 - 14:30

Industry symposium S4

14:30 - 15:00

Session 15F. Poster session F: Dysphagia after HNC treatment

Chairs: T. McCulloch, E. Ward

14:30 - 15:00

Session 15G. Poster session G: Dysphagia in geriatric patients

Chairs: G. Ruoppolo, D. Smithard

14:30 - 15:00

Session 15H. Poster session H: Dysphagia in stroke and brain damage

Chairs: R. Gonçalves, P. Pokieser

14:30 - 15:00

Session 15I. Poster session I: Treatment

Chairs: E. Wagner-Sonntag, R. Speyer

14:30 - 15:00

Session 15J. Poster session J: Professional roles in dysphagia management

Chairs: M. Bülow, M. Walshe

15:00- 16:00

Session 16. Free Papers 6: Dysphagia in geriatric patients

Chairs: D. Smithard, P. Clavé

- 16.01 DYSPHAGIA OR PRESBYPHAGIA? A META-ANALYSIS OF SWALLOW TIMING IN THE ELDERLY
A.M. Namasivayam; C.E.A. Barbon; C.M. Steele
- 16.02 RELATIONSHIPS BETWEEN DECLINE IN ORAL FUNCTIONS AND NUTRITIONAL STATUS IN ELDERLY PATIENTS IN AN ACUTE HOSPITAL
K.M. Matsuo; H.T.Taniguchi; K.N. Nakagawa; M.K. Kanazawa; J.F. Furuya; K.T. Tsuga; K.I. Ikebe; T.U. Ueda; F.T. Tamura; H.N. Nagao; K.Y. Yamamoto; K.S. Sakurai; S.M. Minakuchi
- 16.03 PREDICTING DYSPHAGIA IN THE FRAIL ELDERLY: RISK FACTORS AND PREDICTORS IN MEDICAL HISTORY AND BEDSIDE EXAMINATION
D. Pu; K.L.K. Ho; J.S.Y. Luo; W.W.S. Lam; A.T.S Chiu; E.M.L. Yiu; K.M.K. Chan
- 16.04 DYSPHAGIA AS A SIDE EFFECT OF PHARMACOTHERAPY IN NURSING HOME RESIDENTS
C. Venturini; P. Orlandoni; N. Jukic Peladic; N. Giorgini; C. Cola; D. Sparvoli; D. Fagnani; R. Basile; M. Sestilli
- 16.05 THE CHANGES OF CORTICAL ACTIVATION IN SWALLOWING AFTER APPLICATION OF HIGH FREQUENCY RTMS IN OLDER ADULTS
J.W. Park; H.J. Kim
- 16.06 VALIDATION OF INLINE RHEOMETRY WITH THICKENER BASED LIQUIDS FOR DYSPHAGIA
M.Q. Wagas; J. Wiklund; O. Ekberg; M. Stading

16:00 - 16:30

Coffee break

16:30- 17:00

Session 17. Short & long term impact of RT/Management of OD following RT for H&N patients

Chairs: L. Baijens, B. Arenaz-Bua – Speakers: E. Russi, A. Merlotti, T. McCulloch

17:00- 17:30

Session 18. Impact of dysphagia management on ALS/Rehabilitation in neurologic dysphagia

Chairs: P. Clavé, E. Plowman – Speakers: A. Chiò, E. Saitoh

17:30- 18:00

Closing Ceremony and Awards

of swallowing onset, the progressive prolonging of the propagation of the dorsal pharyngeal wave, the delay of laryngeal closure and other events are important landmarks. The relative lonicity of the oropharyngeal structures, the movement of the epiglottis and the relative hypoplasia of the OES shows a remarkable alteration with time. The duration and the continuity of the esophageal wave has also an important relation to age. Statistical relevant alterations can be demonstrated at the measurements of 20 Yy, to 40-50 Yy and to the older (over 75 Yy). Patient examples in relation to age and timing analysis will be shown. Conclusion: In our daily patient studies we need to integrate the physiologic alterations of the swallowing performance in order to appreciate the individual disturbance of our patient. This allows us not to overestimate the grade of the objective patient's illness.

11.04 CORTICAL MECHANISMS FOR THE INTEGRATION OF POSTURE AND SWALLOWING MOVEMENT: A FINIS STUDY

M. Yamazaki¹, S. Matsuda², S. Shihano¹, I. Dait¹ / *Kyoto Prefectural University of Medicine*, ²Chuo University.

(Backgrounds) The swallowing performance is influenced by posture. There are subcortical and cortical centers above the brainstem that induced swallowing movement, however, their specific role and connections are not well understood from the viewpoint of postural change. We applied functional near-infrared spectroscopy (fNIRS), an optical method that noninvasively measure cortical hemodynamics, for brain mapping in swallowing with postural change. (Methods) Eighteen of right-handed healthy male were analysed. Subjects, on the chair or in supine position were put 3s-channel holder of OMN-2000 Optical Multichannel Monitor (Shimadzu, Kyoto, Japan). An increase in oxyHb is used as an indicator for brain activation. Sensorimotor cortex and frontal lobe were set as the region of the interest. Data analysis was performed according to our previous study. Optode positions were measured using a 3D magnetic space digitizer. Probabilistic method was used to register fNIRS

data to MNI (Montreal Neurological Institute) standard brain space. The statistical method used was a general linear model employing a two-level summary statistics approach for random effects analysis with a one-tailed t test. (Results) Activation areas in each task were detected separately in SM (p < 0.05 by Student t, one-tailed, FDR controlled). During swallowing in supine, activation was detected in tongue SM and BA 40 (p < 0.05, one-tailed, FDR controlled). The haemodynamic pattern observed during swallowing was different in sitting versus supine position in BA 6 and BA 40 (p < 0.05, one-tailed, FDR controlled). (Conclusions) The haemodynamic pattern during swallowing appeared different in sitting versus in supine position in BA 6 and BA 40. Our findings suggest that the sensory input is more important in supine than in sitting posture. Since fNIRS measurements are limited to the cortical surface, determining cortical connections to insula and basal ganglia in swallowing requires continued research.

11.05 THE IMPACT OF VARIOUS CONSISTENCIES ON SWALLOWING SAFETY IN NEUROGENIC DYSPHAGIA

Leid, Christian¹, M. Went-Reiter¹ / *Schoen Klinik Bad Aibling*

(Introduction: Dietary adaptation is an important intervention to avoid aspiration and exploits different characteristics of food. It is well known that thickening of fluids can reduce the risk of aspiration. The aim of this study is to determine the impact of fluid and texture variation on swallowing safety in neurogenic dysphagia. Method: Analysis of 958 FEES exams which were conducted during a 2-year period in a neurologic acute and rehabilitative hospital. Penetration-Aspiration scores (PAS) were determined in a consensus procedure by 2 raters with repeated rater trainings. FEES exams were included in the analysis if multiple consistencies (saliva, fluids, jelly and solids) could be tested (n=724). Results: PAS values differed significantly between consistencies (Friedman test; p<0.000) with jelly being the safest consistency (mean PAS=2.5) followed by solids (mean PAS=3.0). The highest risk of

aspiration was associated with fluids (mean PAS=5.3) and saliva (mean PAS=4.5). Thickening of fluids reduced the mean PAS to 3.9. This order was maintained in patients who aspirated (PAS >=6) at least on one consistency (n=62); mean PAS: fluids 6.8, saliva 6.1, thickened fluids 4.5, solids 3.8, puree 3.5) as well as in patients who aspirated saliva silently (n=104; mean PAS: fluids 7.1, thickened fluids 4.1, solids 3.8, jelly 3.1). Conclusions: Jelly proved to be the safest consistency for patients with neurogenic dysphagia. Solids are nearly as safe and should be offered to patients with intact reflexive cough. A significantly higher risk of aspiration is associated with drinking and saliva. As to be expected, thickening of fluids improved swallowing safety but still was not as safe as offering puree or solids. Patients who aspirate saliva should not be deoralized without further examination because many of them will be able to swallow other consistencies safely. The high incidence of aspiration of saliva underlines the need for pulmonary rehabilitation.

11.06 THE PREVALENCE OF PHARYNGEAL SWALLOWING DISORDERS IN PATIENTS WITH DEMYELINATING DISEASES

M. Milewska¹, K. Grabarczyk¹, I. Czernicki², U. Dziwulski², M. Pancerz², B. Janiec¹, J. Chmielewska¹ / *Department of Human Nutrition, Medical University of Warsaw*, ²Department of Neurosurgery, Medical University of Warsaw

(Introduction: Dysphagia in demyelinating diseases usually receives limited attention. It is commonly known that swallowing disorders can lead to aspiration pneumonia, dehydration and malnutrition. Material and Methods: In total, 72 consecutive patients (64 with multiple sclerosis (MS) and 8 with Devic's Syndrome) admitted to a Neurological Unit of Public Central Teaching Hospital Medical University of Warsaw. Participants receiving enteral or parenteral nutrition were excluded. The assessment of swallowing disorders was taken by the Dysphagia

Multiple Sclerosis (DMS) and Eating Assessment Tool 10 (EAT-10) questionnaire. Dysphagia was defined as having <greater or equal> 3 points in both scales. The results were analyzed using SPSS version 17.0. Results: Among 72 patients, 34.7% were classified as having dysphagia (35.9% of MS patients and 50% of Devic's Syndrome). The mean age was 44.2 ± 10.6 years and mean duration of disease - 9.9 ± 7.4 years. Analysis of regression did not show correlation neither between duration of disease nor age and dysphagia. Swallowing disorders were more prevalent in women than in men (respectively 38.3% vs. 28%, NS). The necessity of multiple swallows of solid food (80%), pills and solid foods swallowing difficulties (72%) and coughing during swallowing liquids (68%) were the most common observed problems. Increased efforts during swallowing coexisted with cough (p-less or equal > 0.001). Dysphagic patients had a significantly increased length of meals then patients without dysphagia (p-less or equal > 0.001), risk of malnutrition and aspiration pneumonia was detected in 22.2%, however the differences between mentioned groups were not statistically significant. Conclusion: Swallowing problems were relatively common in patients with demyelinating diseases and occurred independently of duration of disease. These results emphasize the importance of screening dysphagia assessment in patients with demyelinating diseases.

11.07 RANDOMIZED CONTROLLED TRIAL OF TDOS FOR THE TREATMENT OF POSTSTROKE DYSPHAGIA

S. Simeon-Klinger¹, C. Ringmar², P. Mohle³, T. Wernke¹, A. Diemke¹ / *Department of Neurology, University Hospital Münster*

(Introduction: Transcranial direct current stimulation (TDOS) is a non-invasive brain stimulation tool that has shown some potential to aid motor rehabilitation following stroke. In the present study we evaluated whether TDOS is able to speed up the recovery of swallowing function in acute dysphagic stroke patients. Material and Methods: In this single-center, double-blind, randomized study, 60 acute dysphagic stroke

patients received the contralateral TDOS. If the patient's c during stimulat the study int Severely Scale (F cal scores such Functional Oral li study. One patie excluded. Study site of stroke, sl other stroke syn 116 h in mean in limit were comp. ment group show 0.4 points, p < 0 points, p < 0.01) to the sham gro in the stimulat provement of DS According to our lowing motor co dysphagia. Early

11.08 A SYSTEMIC LIQUID REDUCES

McCurry¹, M. Khan

Introduction: St introduction: St ommendations i mentations for compensatory s