CO45-003-e
The coordination of breathing and swallowing during hypercapnia in rats
I. Ghannouchi a,*, J.-P. Marie, E. Verin b
EA 5830, université de Rouen, 22, boulevard Gambetta, 76000 Rouen, France
*Corresponding authors.
E-mail address: ines.ghannouchi@hotmail.com.

Introduction.– The pharynx is a common organ for both swallowing and breathing. Their coordination is important to avoid pulmonary aspiration and is characterized mainly by the occurrence of swallowing during expiration.

Objective.– The aim of this study was to investigate the effect of hypercapnia on swallowing function as well as on the coordination swallowing–ventilation in unrestrained animal.

Methods.– The study was carried out on 20 Wistar rats (2–3 months, 275–300 g) subdivided in two groups (G1: exposed to ambient air; G2: exposed to 10% CO2) using whole-body plethysmography and video recordings. The rats were given water via a baby bottle fitted with a nipple after 24 h without drinking. The experiment was continued until rest ventilation and swallowing periods were identified on the video recordings.

Results.– In healthy animals during swallowing, we observed a decrease in total ventilatory period (TTOT), a decrease in inspiratory time (TD) (P < 0.001), a decrease in expiratory time (TE) (P < 0.001), no change in tidal volume (VT) and an increase in mean inspiratory time (VT/TI) (P < 0.05) compared to the rest period. Animals exposed to 10% of CO2 presented during swallowing a decrease in VT (P < 0.05), no change in VT/TI, TTOT and TI and an increase in TE (P < 0.05). Swallow frequency and swallowing characteristics based on ventilation change in group exposed to hypercapnia. Swallows during expiration decreased (84%, P < 0.05) while swallows during inspiration increased (26%, P < 0.05).

Conclusion.– These results confirmed the coordination ventilation–swallowing in rats exposed to ambient air and suggest that the deglutition and the coordination of swallowing and ventilation may be compromised during hypercapnia.

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Stroke and swallowing disorders: Clinical assessment
J.-Y. Salle a,*, E. Cugy b, A. Judet c, J. Hamonet a, J. Bordes a, F. Joslin a, J.-C. Daviet a
a CRMPR Les-Herbiers, 111, rue Herbeuse, 76230 Bois-Guillaume, France
b CHU Charles-Nicolle, Rouen, France
c Uniteé de la voix et de la déglutition, ENT departement, Larrey-Rangueil, Toulouse, France
*Corresponding author.
E-mail address: jean-yves.salle@chu-limoges.fr.

Introduction.– Swallowing disorders are common (about 50%) and lead to serious problems post-stroke (pneumonia and death) but is so regressive. The initial assessment must induce an efficient management (decision of feeding adaptation of non oral feeding) Physical signs and ingestion test consist of main approaches of bedside screening of aspiration.

Assessment.– Patients were assessed using three swallowing assessments (clinical tests without feeding, feeding tests or combined tests). A clinical examination allows the research of predictive signs correlated with aspiration at the videofluoroscopic examination. This clinical scale (CPAS) observes velar reflex and gag reflex, arcaic reflex, faulty voluntary laryngeal closure, faulty voluntary swallow, dysphonia or dysarthria, meal reduced of 50% on three consecutive times, increased time of meal (> 30 minutes). Clinical examination alone has a poor sensitivity (58.3%). A feeding test appears to be necessary like the 3-ounce Water swallow Test (sensibility of 76%). The combined screening schema, Practical Aspiration Screening Scheme (PASS), consisted of a 3 oz WT to enhance results of the uncertain of CPSA and show a sensitivity at 89.1% [1].

Conclusion.– Combined schema enhances the efficiency of bedside screening of aspiration.

Reference

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Clinical screening of oropharyngeal dysphagia in patients with ALS
G. Paris a,*, O. Martinaud b, D. Hannequin b, A. Petit b, A. Cuvelier b, P. Roppenenne c, E. Verin c
a CRMPR Les-Herbiers, 111, rue Herbeuse, 76230 Bois-Guillaume, France
b CHU Charles-Nicolle, Rouen, France
*Corresponding author.
E-mail address: paris.gui@gmail.com.

Keywords: ALS; V-VST; Oropharyngeal dysphagia

It’s a major concern to diagnose and detect oropharyngeal dysphagia in early stage of ALS, to avoid pulmonary and nutritional complications. The aim of this study was to validate a simple clinical test, the volume-viscosity swallow test (V-VST), to detect oropharyngeal dysphagia in this population. Twenty patients were included in this study (age: 66.1 ± 8.13, six females) and swallowing function was study by videofluoroscopy and V-VST. Among these 20 patients, 15 presented oropharyngeal dysphagia, diagnose by videofluoroscopy and five had normal swallowing. NORRIS scale was lower in patient with oropharyngeal dysphagia compare to patients with normal swallowing (27 ± 6 vs. 36 ± 2; P = 0.003). Among 15 patients with oropharyngeal dysphagia, 14 had an abnormal V-VST and only one had a normal V-VST. The sensibility of the V-VST to detect oropharyngeal dysphagia was 93% and the specificity was 80% (P = 0.007). There was no difference between the two populations for ALSFRS scale (22 ± 6 vs. 20 ± 6) and BMI (26 ± 6 vs. 26 ± 6). In conclusion, the V-VST presented a good sensibility and specificity and it may be useful to systematically be used to detect oropharyngeal dysphagia in ALS.

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Study of the validity of cervical auscultation during the learning phase of a swallowing test to screen inhalations
M. Puech a,*, L. Perez-Begout a, E. Sarrabere b, V. Woisard c
a Unité de la voix et de la déglutition, hôpital Larrey, CHU de Toulouse, 24, chemin de Pouyouville, TSA 30030, 31059 Toulouse, France
b École d’orthophonie de Toulouse, Toulouse, France
c Unité de la voix et de la déglutition, ENT département, Larrey-Rangueil University Hospital, France
*Corresponding author.
E-mail address: puech.m@chu-toulouse.fr.

Keywords: Testing; Swallowing

Does cervical auscultation allow the therapist a less probabilistic approach in detecting silent aspiration?

The objective of this study was to compare in terms of aspiration detection predictive values of the test of swallowing with and without cervical auscultation, the reference test is fluoroscopy swallowing. Sixty-four patients were hospitalized for an assessment of swallowing in the Unity of Voice and Swallowing Service ENT Hospital Larrey. Each patient underwent radiographic examination by a physician who did not know the results of tests performed previously by two students in speech therapy. For each