

Assessing patients with multiple sclerosis for dysphagia: Is a simple nursing neurological screening test the answer?

Authors

Petra Mandysova*, Edvard Ehler**, Jana Skvrnakova***

Presenters

Petra Mandysova*

Introduction: Dysphagia is a common yet underestimated symptom in patients with multiple sclerosis (MS); furthermore, no unified method exists for swallowing function assessment in these patients. Swallowing assessment is important especially in patients with a high Expanded Disability Status Scale score, more severe cerebellar dysfunction, and long disease duration. A simple assessment (screening) is in the scope of the neurological nurse's practice, yet not many high-quality nursing screening tests exist. Moreover, most screening tests are suitable for conditions other than MS.

Objectives: The aim was to develop a simple neurological dysphagia screening test for nurses that could be used for a variety of neurological conditions including MS. The study was based on comparing the results of physical examination (PE) with flexible endoscopic examination of swallowing (FEES) as the gold standard. The aim was to achieve high sensitivity and negative predictive value (NPV).

Methodology: Study participants included patients with a neurological diagnosis (including MS) and a potential risk of dysphagia (n = 112). The patients underwent PE (32 items) by a trained nurse and FEES by a physician. The results were dichotomized (normal versus abnormal) and compared using the phi coefficient. PE items demonstrating a statistically significant relationship with FEES (p-value < 0.05) were included in the screening test if they contained < 5% of missing values. The diagnostic parameters of the test were calculated for all possible cut-off scores.

Results: Of the 112 patients, six were excluded in the data analysis phase as their PE and FEES were completely normal. For the remaining 106 patients, the following eight PE items met the established criteria: 1) inability to cough, 2) asymmetry/strength of facial muscles, 3) asymmetry/strength of the tongue, 4) inability to clench the teeth, 5) shoulder symmetry/strength, 6) dysarthria, 7) aphasia, and 8) thickened liquid: cough. All of these items were combined into a simple nursing dysphagia screening test. For any patient, the total score ranged from 0–8 points (0 points were given for each normal item and 1 point for each abnormal item, and the total score was the sum of the points). The best cut-off score was 1 as it produced the highest sensitivity (95.5%; 95% confidence interval [CI] = 84.9–98.7) and NPV (88.9%; 95% CI = 67.2–96.9).

Conclusions: Sensitivity and NPV of the developed screening test are high and are comparable with other screening tests described in the literature. However, most other screening tests are for patients with stroke, and nurses are involved in their development quite rarely. The size of our sample was sufficiently large as it permitted a sufficiently narrow estimation of the 95% CI. In this respect, the test is better than many other screening tests. The developed test is simple and is suitable for nurse-led dysphagia screening in patients with neurological conditions, including MS. Further research on its use in MS patients is recommended.

Keywords: assessment, dysphagia, FEES, multiple sclerosis, neurological, nursing, screening test, swallowing.

References (max. 5 - APA Norm): Guan, X.-L., Wang, H., Huang, H.-S., & Meng, L. (2015). Prevalence of dysphagia in multiple sclerosis: a systematic review and meta-analysis. *Neurological Sciences*, 36(5), 671-681. doi: 10.1007/s10072-015-2067-7. Poorjavad, M., Derakhshandeh, F., Etemadifar, M., Soleymani, B., Minagar, A., & Maghzi A.-H. (2010). Oropharyngeal dysphagia in multiple sclerosis. *Multiple Sclerosis*, 16(3), 362-365. doi: 10.1177/1352458509358089. Solaro, C., Rezzani, C., Trabucco, E., Amato, M. P., Zipoli, V., Portaccio, E. et al. (2013). Prevalence of patient-reported dysphagia in multiple sclerosis patients: An Italian multicenter study (using the DYMUS questionnaire). *Journal of the Neurological Sciences*, 331 (1-2), 94-7.

* Faculty of Health Studies, University of Pardubice, and the Neurology Clinic, Pardubice Hospital, Hospitals of the Pardubice Region, Czech Republic, Nursing; Neurology Clinic [Petra.Mandysova@upce.cz]

** Faculty of Health Studies, University of Pardubice, and Pardubice Regional Hospitals, Pardubice Hospital, Clinical Subspecialties, Neurology Clinic

*** Faculty of Health Studies, University of Pardubice, and Pardubice Regional Hospitals, Pardubice Hospital, Nursing, Otolaryngology and Head and Neck Surgery Clinic

<http://dx.doi.org/10.1016/j.jns.2013.05.020>Werner, H. (2005). The Benefits of the dysphagia clinical nurse specialist role. *Journal of Neuroscience Nursing*, 37(4), 212-215. Retrieved from <http://www.medscape.com/viewarticle/512049>

Financing entities: The study was partially funded by grant IGA MZ NT 13725-4/2012.

* Faculty of Health Studies, University of Pardubice, and the Neurology Clinic, Pardubice Hospital, Hospitals of the Pardubice Region, Czech Republic, Nursing; Neurology Clinic [Petra.Mandysova@upce.cz]
** Faculty of Health Studies, University of Pardubice, and Pardubice Regional Hospitals, Pardubice Hospital, Clinical Subspecialties, Neurology Clinic
*** Faculty of Health Studies, University of Pardubice, and Pardubice Regional Hospitals, Pardubice Hospital, Nursing, Otolaryngology and Head and Neck Surgery Clinic