IMPACT OF A MULTIDISCIPLINARY DYSPHAGIA PROTOCOL IN THE STROKE UNIT

M. Guillan¹, N. Barbero-Bordallo¹, L. Sambrano², B. Garcia-Botran³, R. Gutierrez-Fonseca⁴, M. Blanca-Martinez-Barbeito⁵, B. Cava⁶, C. Del Mazo-Pablo⁷, E. Vaquerizo⁸, M. Abuin⁹, J. Fernandez-Ferro¹.

¹Stroke Unit. Neurology. ²Swallow Rehabilitation. ³Dysphagia Unit Nursing. Otorhinolaryngology. ⁴Dysphagia Unit. Otorhinolaryngology. ⁵Endocrinology and Nutrition. ⁶Dietetic. ⁷Speech Therapy.

⁸Rehabilitation. ⁹Stroke Unit Nursing. University Hospital Rey Juan Carlos, Madrid, Spain.

Introduction: Acute stroke is the most common cause of oropharyngeal dysphagia. It affects more than a third of stroke patients (37-78%) and increases the risk of aspiration pneumonia (AP), the most frequent infectious complication in stroke patients (11-48%). Until now, a lack of evidence prevented dysphagia screening to be recommended for the routine management of stroke. Following the latest systematic reviews, guidelines have incorporated it as a new recommendation. However, it is not yet clear what are the best tests or protocol for a routine dysphagia screening in the acute stroke context.

Our objective was to measure the impact of our dysphagia protocol in our stroke unit (SU).

Methods: We prospectively include all patients with stroke/TIA from September-2013 to March-2017 (protocol implemented in February-2014). Study periods: historic period (HP: 9/2013-1/2014), initiation period (IP: 2/2014-6/2014), consolidation period (CP: 7/2014-3/2017). The stroke physician decides within the first 48-72 hours from admission if the dysphagia assessment may be performed by a SU-nurse or by a specialised dysphagia-nurse; based on a low or high a priori risk of dysphagia respectively. A skilled nurse adapts the diet, establishes the need for complementary tests and monitors the patient throughout the whole admission. Dysphagia rehabilitation begins according to evolution. Adjusted odds ratios and 95%CI were obtained for AP diagnosis; in-hospital and 90-day mortality and 90-day independence rate (mRS 0-2). Pneumonia was defined as the presence of fever, typical respiratory symptoms, elevation of acute phase reactants and absence of another infectious focus, which may or may not be present on the chest radiograph, all after 48 hours of admission.

Results: 839 patients were included (age mean 71.3 ± SD 13.4 (64;84)IQR): 80 HP/ 100 IP/ 659 CP. Baseline characteristics between groups were fairly comparable.

Adjusted regression analysis revealed that, compared to the HP: AP was 9.5 and 12.2 times lower in IP and CP respectively; independence rate was 5.7 and 4.8 times higher in IP and CP respectively; in-hospital mortality risk was reduced by 54% and 68% in IP and CP and 90-day mortality was 3 times lower in CP.

Baseline characteristics N= 839	Historic Period N 80 Sep 2013- Jan 2014	Initiation Period N 100 Feb 2014- Jun 2014	Consolidation Period N 659 Jul 2014- Feb 2017	p<0.05
Age (years) mean ± DS	73.3 ± 13.8	72.9 ± 13.8	70.8 ± 13.4	ns
Sex Female N(%)	39 (48.8%)	40 (40%)	295 (44.8%)	ns
Hypertension N(%)	53 (66.3%)	80 (80%)	442 (67%)	ns
Diabetes N(%)	18 (22.5%)	35 (35%)	185 (28%)	ns
Dyslipemia N(%)	36(45%)	48 (48%)	321 (48.7%)	ns
Smoking habit N(%)	14 (17.5%)	17 (17%)	152 (23%)	ns
Baseline NIHSS median (IQR)	8.3 (2;13)	6.7 (1;11)	6.8 (1;10)	ns
Ischemic stroke N(%)	66 (82.5%)	87 (87%)	572 (86.8%)	ns
TIA N(%)	8 (10%)	14 (14%)	127 (19%)	0.043
Lesion location: Right hemisphere N%	44 (55%)	58 (58%)	350 (53%)	ns
Infratentorial N%	9 (11.3%)	19 (19%)	106 (16%)	ns
Reperfusion therapies IVT or/plus MT N%	3(3.8%)	4 (4%)	88 (13.4%)	0.014

N= 839	Historic P N 80 Sep 2013- Jan 2014	Initiation P N 100 Feb 2014- Jun 2014	p	Consolidation P N 659 Jul 2014- Feb 2017	p
Dysphagia diagnosis rate N%	32 (40%)	43 (43%)	ns	341 (51.7%)	<0.05
In-hospital mortality N%	13 (16.3%)	10 (10%)	ns	52 (7.9%)	<0.01
90-day independence rate (mRS 0-2) N%cumulative	38(60.3%)	68 (76.4%)	<0.01	425 (72.6%)	<0.01
90-day mortality N%	17(21%)	14 (14%)	ns	71 (10.8%)	<0.01
Length of hospital stay (days) mean ± SD (IQR)	8 ± 10.5 (4; 7)	7.3 ± 8.6 (2; 8)	ns	8 ± 11.4 (3;8)	ns
Videofluoroscopy/FEES N%	3(3.8%)	18 (18%)	<0.01	156 (23.7%)	<0.001
NG tube initial diet N%	13 (16.3%)	14 (14%)	ns	94 (14.1%)	ns
NG tube discharge N%	4 (5%)	5 (5%)	ns	72 (10.8%)	ns
Swallow rehabilitation N%	10 (12.5%)	24 (24%)	0.05	134(20.3%)	ns

Association between study period and Aspiration Pneumonia (AP). Analysis adjusted by strongest risk factors. TIA and Reperfusion therapies are included.

Conclusions: Our dysphagia protocol was associated with a lower risk of AP, lower hospital and 90-day mortality and a higher probability of independence at day 90. The reduction in mortality risk was largely associated with lower AP occurrence.

Bibliografía

1. Powers WJ, Rabinstein AA, Ackerson T, et al; American Heart Association Stroke Council. 2018 Guidelines for the Early Management of Patients With Acute Ischemic Stroke: A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association. Stroke. 2018 Mar;49(3):e46-e110. 2. Burgos R, Bretón I, Cereda E, et al; ESPEN guideline clinical nutrition in neurology. Clin Nutr 2018; 37:354-96. 3. Palli C et al. Early dysphagia screening by trained nurses reduces pneumonia rate in stroke patients. Stroke 2017;2583-2585. 4. Cocho D et al. Reducción de la tasa de broncoaspiración con el test 2 volúmenes/3 texturas controlado con pulsioximetría en una unidad de ictus. Neurología 2012; 1-154. 5. Martino R et al. Dysphagia after stroke: incidence, diagnosis, and pulmonary complications. Stroke 2005;2756-63. 6. Clave P et al. Accuracy of the volume-viscosity swallow test for clinical screening of oropharyngeal dysphagia and aspiration. Clin Nutr 2008;806-15.