contributions made it possible to offer timely care for our patients.

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# Perception of dysphagia in the ICU of Spain, diagnostic and therapeutic management☆

## Percepción de la disfagia en las UCI de España, manejo diagnóstico y terapéutico

*Dear Editor:*

Oropharyngeal dysphagia (OPD) and its complications are problems often described in critically ill patients. However, the incidence rate of this entity is still unknown.[1,2] Due to the scarce information available, different authors recommend conducting future studies to try to validate standardization in the diagnostic protocols of this problem.[3–6]

Therefore, the authors of this study attempted to find out about the perception, diagnostic approach, and therapeutic management of OPD in Spanish intensive care units (ICU).

A cross-sectional descriptive study was conducted from a survey submitted to Spanish ICUs and translated into Spanish from the DICE study published by Zuercher Z et al. in Switzerland.[7] This survey was submitted to physicians and nutrition experts—one per ICU—from June through November 2020.

A descriptive analysis of data and a bivariate analysis were conducted to study whether there were any differences among the different ICUs surveyed based on the *Number of patients treated each year* (< and >1500/year).

A total of 38 ICUs participated in the survey nationwide, 31 (81.5%) of them provides care to less than 1500 patients/year.

A total of 34 ICUs (89.5%) considered that swallowing disorders were a problem of ICU patients. However, only 10 ICUs (26.3%) had a normalized care procedure to treat this entity, while 8 of them (21.1%) were thinking of its implementation in the near future (Table 1).

Regarding screening, 17 ICUs (44.7%) performed it, although only 3 (7.9%) would do so systematically in all the patients. All ICUs > 1500 beds performed screening (Table 1). This screening was often performed by the nursing staff in 22 ICUs (57.9%) and mostly it was performed using the water swallowing test in 15 of these units (39.5%) (Table 2).

A total of 23 ICUs (60.5%) did not follow sequential approaches to assess OPD (screening test followed by an assessment by a dysphagia specialist and/or a confirmation procedure test). This percentage was higher in ICUs with <1500 patients/year [20 (64.5%).] In 39.5% of the ICUs no specific assessments to diagnose dysphagia were performed (41.9% in ICUs with <1500 patients/year vs 28.6% in ICUs with >1500 patients/year) and whenever these assessments would be performed, they were the responsibility of the ENT specialist in 8 ICUs (21.1%) (Table 2).

The most widely used diagnostic technique at the ICUs was the swallowing test (52.6%) followed by the clinical suspicion of aspiration (47.4%) (Table 2). Fiber endoscopy of swallowing was the most commonly used procedural test for diagnostic purposes. However, it was only used in 23.7% of the ICUs (19.4% in ICUs with <1500 patients/year vs 42.9% in >1500). No ICU ever used video fluoroscopy of swallowing or manometry for study purposes.

Regarding treatment, it was mainly based on changing diet, the size of the bolus, and the consistency of food in 24

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**Table 1** Perception of dysphagia at the ICU setting.

| Perception | All hospitals (N = 38) | | ICUs < 1500 patients/year (N = 31) | | ICUs > 1500 patients/year (N = 7) | | *P* |
|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | |
| *Overall, do you think that swallowing disorders (dysphagia) are a problem for the patients at your ICU?* | | | | | | | |
| No | 4 | 10.5 | 3 | 9.7 | 1 | 14.3 | 0.720 |
| Yes | 34 | 89.5 | 28 | 90.3 | 6 | 85.7 | |
| *Do you have a healthcare protocol for the management of dysphagia (eg. a normalized work procedure [NWP])?* | | | | | | | |
| No | 20 | 52.6 | 18 | 58.1 | 2 | 28.6 | 0.121 |
| It is projected in the near future | 8 | 21.1 | 7 | 22.6 | 1 | 14.3 | |
| Yes | 10 | 26.3 | 6 | 19.4 | 4 | 57.1 | |
| *Is dysphagia often screened in patients admitted to your ICU?* | | | | | | | |
| Screening is projected in the near future | 7 | 18.4 | 5 | 16.1 | 2 | 28.6 | 0.091 |
| No, no screening is ever performed | 14 | 36.8 | 13 | 41.9 | 1 | 14.3 | |
| Yes, patients are screened on a case-by-case basis | 14 | 36.8 | 12 | 38.7 | 2 | 28.6 | |
| Yes, all patients are systematically screened at the ICU | 3 | 7.9 | 1 | 3.2 | 2 | 28.6 | |
| *Do you think that dysphagia diagnosed at the ICU setting impacts the mid- and long-term mortality rate (>28 days)?* | | | | | | | |
| Undecisive | 8 | 21.1 | 8 | 25.8 | 0 | 0.0 | 0.264 |
| No | 1 | 2.6 | 1 | 3.2 | 0 | 0.0 | |
| Yes | 29 | 76.3 | 22 | 71.0 | 7 | 100.0 | |
| *Do you think that dysphagia diagnosed at the ICU setting extends the ICU stay?* | | | | | | | |
| Undecisive | 2 | 5.3 | 2 | 6.5 | 0 | 0.0 | 0.319 |
| No | 6 | 15.8 | 6 | 19.4 | 0 | 0.0 | |
| Yes | 30 | 78.9 | 23 | 74.2 | 7 | 100.0 | |
| *Do you think that dysphagia diagnosed at the ICU setting increases the overall cost of hospital treatment?* | | | | | | | |
| Undecisive | 3 | 7.9 | 3 | 9.7 | 0 | 0.0 | 0.604 |
| No | 1 | 2.6 | 1 | 3.2 | 0 | 0.0 | |
| Yes | 34 | 89.5 | 27 | 87.1 | 7 | 100.0 | |

**Table 2** Diagnostic and therapeutic management of dysphagia at the Spanish ICU setting.

| Diagnostic and therapeutic management | All hospitals (N = 38) | | ICUs < 1500 patients/year (N = 31) | | ICUs > 1500 patients/year (N = 7) | | *P* |
|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | |
| *What type of patients are screened for dysphagia?* | | | | | | | |
| Everyone | 2 | 5.3 | 2 | 6.5 | 0 | 0.0 | 0.490 |
| Post-extubated or decannulated patients | 21 | 55.3 | 17 | 54.8 | 4 | 57.1 | 0.912 |
| Patients with neurological underlying conditions | 17 | 44.7 | 14 | 45.2 | 3 | 42.9 | 0.912 |
| Patients with preexisting swallowing disorders | 12 | 31.6 | 9 | 29.0 | 3 | 42.9 | 0.477 |
| Patients with clinical signs of dysphagia | 21 | 55.3 | 15 | 48.4 | 6 | 85.7 | 0.73 |
| *Who does the screening?* | | | | | | | |
| Nurses | 13 | 34.2 | 11 | 35.5 | 2 | 28.6 | 0.493 |
| Nobody | 4 | 10.5 | 4 | 12.9 | 0 | 0.0 | |
| An occupational therapy specialist | 1 | 2.6 | 1 | 3.2 | 0 | 0.0 | |
| A physical therapist | 1 | 2.6 | 1 | 3.2 | 0 | 0.0 | |
| A speech therapist | 3 | 7.9 | 3 | 9.7 | 0 | 0.0 | |
| An intensivist | 6 | 15.8 | 5 | 16.1 | 1 | 14.3 | |
| An ENT | 1 | 2.6 | 1 | 3.2 | 0 | 0.0 | |
| An ICU nurse | 9 | 23.7 | 5 | 16.1 | 4 | 57.1 | |
| *How is screening performed?* | | | | | | | |
| Through an eating test | 12 | 31.6 | 10 | 32.3 | 2 | 28.6 | 0.013 |
| It is never performed | 5 | 13.2 | 5 | 16.1 | 0 | 0.0 | |
| Performing a fiber optic endoscopy while swallowing | 1 | 2.6 | 0 | 0.0 | 1 | 14.3 | |
| No procedural tests are performed: through clinical examination | 5 | 13.2 | 2 | 6.5 | 3 | 42.9 | |
| No procedural tests are performed: using the water swallowing test | 15 | 39.5 | 14 | 45.2 | 1 | 14.3 | |
| *Who performs the specialized examination?* | | | | | | | |
| No confirmation tests are ever performed | 15 | 39.5 | 13 | 41.9 | 2 | 28.6 | 0.078 |
| A speech therapist | 4 | 10.5 | 3 | 9.7 | 1 | 14.3 | |
| An ENT | 8 | 21.1 | 8 | 25.8 | 0 | 0.0 | |
| Other | 11 | 28.9 | 7 | 25.7 | 4 | 57.2 | |
| *What is the technique used to achieve to a diagnosis of ''dysphagia''?* | | | | | | | |
| Clinical signs of dysphagia (aspiration) | 18 | 47.4 | 16 | 51.6 | 2 | 28.6 | 0.270 |
| Clinical examination: swallowing test | 20 | 52.6 | 18 | 58.1 | 2 | 28.6 | 0.158 |
| Use of fiber endoscopy while swallowing | 9 | 23.7 | 6 | 19.4 | 3 | 42.9 | 0.186 |
| No diagnostic technique is used | 4 | 10.5 | 3 | 9.7 | 1 | 14.3 | 0.720 |
| *How do you treat your ICU patients with dysphagia?* | | | | | | | |
| Absolute oral diet during the ICU stay | 4 | 10.5 | 2 | 6.5 | 2 | 28.6 | 0.085 |
| By changing the consistency of food | 24 | 63.2 | 21 | 67.7 | 3 | 42.9 | 0.218 |
| By feeding the patient through a catheter only | 15 | 39.5 | 10 | 32.3 | 5 | 71.4 | 0.055 |
| Through early tracheostomy | 1 | 2.6 | 1 | 3.2 | 0 | 0.0 | 0.630 |
| Through swallowing rehabilitation | 14 | 36.8 | 10 | 32.3 | 4 | 57.1 | 0.218 |
| Through transcranial electrical or magnetic stimulation | 1 | 2.6 | 0 | 0.0 | 1 | 14.3 | 0.033 |

ICUs (63.2%). On the other hand, 15 ICUs focused on feeding their patients through a catheter (39.5%) (Table 2).

Regarding swallowing rehabilitation, only 14 ICUs (36.8%) implemented techniques aimed at functional motor or sensory-motor recovery, and postural changes to facilitate swallowing performed by physical or speech therapists (Table 2). We should mention that ICUs with >1500 patients/year were more prone to have this rehabilitation program implemented (57.1% vs 32.3%). Similarly, these ICUs implemented less dietary adaptation measures (42.9% vs 67.7%) and more absolute diets orally (28.6% vs 6.5%) (Table 2).

The most important risk factors according to respondents (they could answer to more than 1) to develop ODP were intubation >5 days in 33 ICUs (86.8%), admission due to neurological disease in 33 (86.8%), muscle wear and tear or cachexia whether preexisting or acquired in 29 (76.3%), the presence of a preexisting neurological condition in 28 ICUs (73.7%), age in 21 (55.3%) or admission due to trauma in 20 ICUs (52.6%).

An elevated percentage of respondents thought that OPD had significant repercussions in mid- and long-term mortality in 29 ICUs (76.3%) causing longer ICU stays in 30 ICUs (78.9%) and, therefore, higher hospital costs in 34 (89.5%) (Table 1).

The leading complications associated with dysphagia were aspiration pneumonia in 36 ICUs (94.7%) followed by malnutrition or cachexia in 25 (65.8%), need for reintubation in 24 ICUs (63.2%), readmission in 18 (47.4%), decannulation intolerance in 13 (42.1%), need for tracheostomy in 13 (34.2%), and sepsis in 12 (31.6%).

Acquired weakness in critically ill patients was another added problem. However, there was a normalized work procedure to approach this entity in 18.4% of ICUs only (42.9% in ICUs with >1500 patients/year vs 12.9% in ICUs with <1500 patients/year).

Finally, most ICUs [35 (92.1%)] arrived to the conclusion that dysphagia should be paid a little more attention at the ICU setting.

Regarding the study limitations, on the one hand, we should mention that the rate of response was small (14% of all Spanish ICUs). On the other hand, there can be a positive answer bias based on which healthcare workers more sensitive to this problem may have been the most active respondents, which could magnify ethe problem of managing ODP at the ICU setting even more.

With the results obtained we can say that most Spanish ICUs that participated in the survey consider ODP as a potential problem for their patients. However, more than half of these ICUs don't have a normalized work procedure for the management of this swallowing disorder. A similar situation was found in a Dutch trial. According to this trial, although ICU healthcare workers were aware of the problem, only 20% of all ICUs had already implemented standard procedures for detection and treatment purposes.[8] However, in the Swiss DICE study, the authors confirmed than in almost 70% of the participant hospitals this type of protocols had already been implemented.[7]

In conclusion, although ODP is perceived as a significant problem that impacts the prognosis of these patients, it seems obvious that ICUs don't have any protocols to achieve diagnosis or for the sequential approach of this entity.

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