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Evaluation of swallowing in the critically ill patient. The right time

Abstract

Swallowing is defined as the passage of liquid and solid substances from the mouth to the stomach, and, within this process, there are four stages (anticipatory, oral, pharyngeal and esophageal) that will be responsible for carrying out said activity safely and effectively. If there is any alteration in any of these stages, it is called dysphagia, and consequently, the patient could present bronchial aspiration, malnutrition and dehydration; likewise, prolong the days of hospital stay and increase morbidity and mortality.

The patient admitted to the Intensive Care Unit (ICU), may require mechanical ventilation support through an oro-tracheal tube or tracheostomy, which affects the structures involved in the act of swallowing (rigidity, weakness, alteration in subglottic pressure, sensitivity and edema) and its interaction with breathing, triggering a possible dysphagia associated with mechanical ventilation (VAMD). This involvement can occur at the time of extubation of the patient (post-extubation dysphagia) or if the patient has a tracheostomy cannula.

Keywords: anticipatory, oral, pharyngeal , esophageal, dysphagia

Volume 7 Issue 2 - 2022

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Received: August 10, 2022 | **Published:** August 26, 2022

Abbreviations: ICU, intensive care unit; VAMD, dysphagia associated with mechanical ventilation; FEES, fiberoptic endoscopic evaluation of swallowing

Editorial

What is the ideal time for the assessment?

VMAD is underdiagnosed within the ICU, however, it should be noted that there is an incidence of 3% to 62% in post-extubated patients and 50-84% in tracheostomized patients, therefore, it is crucial to carry out an early evaluation and timely for the detection and care of patients with dysphagia.[1] According to scientific evidence, the optimal time to assess swallowing is 24 hours after the orotracheal tube was removed, in order to allow recovery of the swollen structures and observe that extubation has not failed. In relation to the tracheostomized patient, it should be noted that the evaluation of swallowing must be directed according to the objectives. In the patient with prolonged mechanical ventilation, it is safe and feasible to be able to carry out an objective evaluation of swallowing only if the deflation of the tracheostomy cannula pneumotamponade balloon is tolerated. However, it is important to assess whether it is possible to wean from mechanical ventilation in the first instance. If he does not require mechanical ventilation but has a tracheostomy, it is necessary to assess whether he has adequate secretion control and, at the same time, assess his oral nutrition subjectively and/or objectively.[2] It is important to take decannulation into account as the first objective before a dietary implementation, however, it may be safe to start with an oral diet in the patient who has a tracheostomy cannula for a long time, as long as a pertinent evaluation is made.[3] (Figure 1) it is important to assess whether it is possible to wean from mechanical ventilation in the first instance.

Approach to oropharyngeal dysphagia

To carry out a timely assessment, it is necessary to take into account the patient's history, in which previous antecedents are analyzed that could be directly correlated to their current state; As a next point, the exhaustive exploration of the participating swallowing structures and their postural relationship with the other body segments is of the utmost importance, as is the detection of any sensorimotor alteration of the cranial nerves, where specific tests of each nervous structure are carried out. After this, it is necessary to apply clinical and/or instrumented evaluation tools, all this, in order to specifically identify the alterations in each phase of swallowing, where their choice would be individualized and aimed at the objectives to comply.

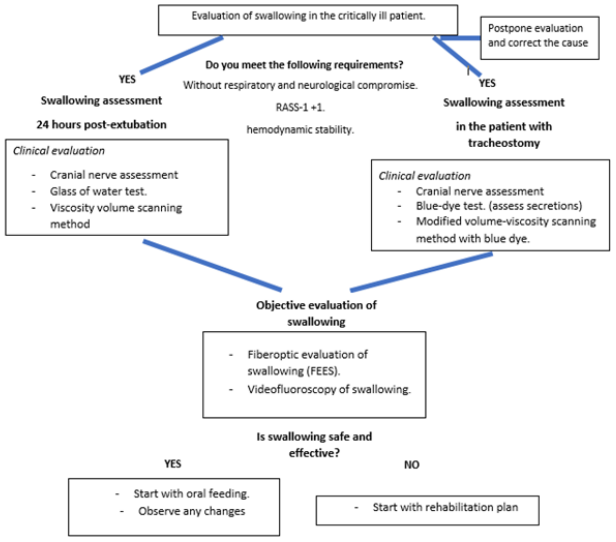

Figure 1 Algorithm for swallowing evaluation.

Methods of clinical and objective evaluation of dysphagia

Within the clinical assessment we can find a variety of tools, such as the volume-viscosity method (V-MEC), a bedside test used to detect alterations mainly in the oral and pharyngeal phase, with a diagnostic sensitivity of 83-85 %, and a specificity of 64-69%. For patients with tracheostomy, the Blue Dye Test can be used to detect aspirations, which has been shown to have a sensitivity of 82-100% but with the presence of false negatives of up to 50%.[4]

For an objective evaluation, the implementation of instrumented tools is necessary, such as the fiberoptic endoscopic evaluation of swallowing (FEES), which has between 70-80% sensitivity and 93% specificity. A second useful tool is videofluoroscopy, considered the "gold standard" for the biomechanical study of swallowing (Table 1).[5]

Table 1 Clinical and objective evaluation of swallowing

Clinical evaluation	Objective evaluation
MECV-V Clinical method whose objective is the detection of alterations in the efficacy and safety of swallowing, it helps us to determine the volume of the bolus and the safe viscosity for the patient at the time of defining oral feeding, using mouthfuls of 5, 10 and 20 ml of nectar, liquid and pudding.	**Videofluoroscopy**: Dynamic radiological study based on the intake of radio-opaque contrast as a whole from the recording of a video support using increasing volume and viscosities. It is used to examine the mechanics of all phases of swallowing, swallow/breath coordination, and the presence of debris.
Blue dye test. Test in which 1 to 2 ml of vegetable blue dye is administered orally and it is requested that the content be swallowed, subsequently, it is observed if there is the presence of blue dye in pericanular or endotracheal secretions in the following 24 hours. This test has also been used to evaluate the handling of different food consistencies, mainly liquid and semi-solid.	**Fiberoptic Evaluation of Swallowing (FEES):** It allows a visualization of the laryngopharyngeal structures with the use of a nasofibroscope, through the active swallowing of 5, 10, 15 and 20 ml of nectar, pudding, liquid and solid ¼ and ½, evidencing the behavior of the bolus and the protection of the pathway aerial, defining the presence of penetration and aspiration. In this study, only the pharyngeal phase before and after swallowing can be evaluated.

Acknowledgments

None.

Funding

None.

Conflicts of interest

Author declares that there is no conflict of interest.

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Citation: Barraza LCR, Mijangos AV, Chavez MAF, et al. Evaluation of swallowing in the critically ill patient.The right time. *Int Phys Med Rehab J*. 2022;7(2):73–74. DOI: 10.15406/ipmrj.2022.07.00307