Dysphagia in COVID-19 Patients

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the causative agent of COVID-19, after entering the body, can cause mild asymptomatic disease to severe acute respiratory distress syndrome (ARDS) resulting in dyspnea and apnea, eventually requiring respiratory support. Respiratory support measures may include endotracheal intubation and mechanical ventilation. In addition, enteral feeding through a nasogastric tube is required to provide adequate nutrition to the patient. All these interventions are important risk factors for dysphagia. The swallowing deficit may lead to aspiration and, consequently, aspiration pneumonia (*lung infection that develops following inhalation of food, liquid, or vomit into the lungs*), resulting in an increased burden on the already damaged lungs.

**Causes of Dysphagia in COVID-19 Patients**

Several factors play an important role in the development of dysphagia in COVID-19 patients.

* **Trauma:**

The type of endotracheal tube used, duration intubation lasted for, and the process itself can cause mechanical injuries. Endotracheal tube insertion might lead to any of the following:

* + - 1. Injury to the lips may result in drooling of saliva.
      2. Patients with known dental diseases like periodontitis or dental carries can have their teeth damaged.
      3. Laryngeal edema is very commonly seen in patients after extubation. This impairs the elevation of the hyolaryngeal complex and the laryngeal sphincter, subsequently increasing the risk of aspiration.
      4. The area of vocal cords, arytenoids, epiglottis, and the base of the tongue can suffer mucosal abrasion, inflammation, hematomas, and ulcerations.
      5. Intubation may also result in dislocation and subluxation of the arytenoid cartilage, compromising the closure of the laryngeal vestibule.
      6. Sometimes, the recurrent laryngeal nerve may be injured by the endotracheal tube cuff. This results in vocal cord paresis.
      7. Direct laryngeal injury can be a risk factor for dysphagia. It can also result in the development of respiratory distress, voice disorders, and swallowing disorders.
* **Neuromuscular Weakness:**

Long-term intubation may lead to neuromuscular weakness and discoordination of muscles and nerves, leading to impaired swallowing action.

* **Gastroesophageal Reflux Disease (GERD):**

GERD is one of the most prevalent and chronic disorders. Besides that, the nasogastric tube for nutrition, lying position, and the use of paralytic agents and sedatives in therapy increases the risk of GERD and subsequently, dysphagia.

* **Increased Cough Reflex:**

Increased coughing, along with shortness of breath, can have a direct impact on swallowing, leading to dysphagia.

* **Long term ICU stay:**

A long-term stay in an intensive care unit (ICU) may lead to cachexia, reduced sensitivity of upper respiratory tract, and altered sensorium secondary to the use of excessive delirious agents.

However, all these consequences are either less relevant or remain unnoticed until the patient is extubated. Therefore, during the in-patient stay, it is critical to assess the safety and efficacy of swallowing, as tracheal aspiration may lead to worse respiratory outcomes. The diagnostic workup includes an aspiration screening (e.g., water swallow test as implemented in the Bernese ICU Dysphagia Algorithm) and instrumental swallow assessment using fiberoptic endoscopic evaluation of swallowing (FEES).

The incidence, diagnosis, and management of dysphagia in COVID-19 patients have not been discovered. Therefore, after the initial dysphagia assessment, the implementation of first therapeutic interventions like dietary modifications and simple compensatory maneuvers should be made. Further interventions and more refined treatments should be decided following upcoming protocols for this novel disease.