

BASIC PROCEDURES TO ASSESS AND TREAT **OROPHARYNGEAL DYSPHAGIA IN PATIENTS WITH COVID-19 INFECTION.**

EXPERT OPINION PRACTICAL GUIDANCE FROM HOSPITAL DE MATARÓ,
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Aim: To provide expert opinion and practical guidance with 10 points to advice and guide SLP, nurses, physicians, dietitians and healthcare professionals (HCP) in the assessment and treatment of patients with OD/suspected OD/at risk of OD **and** COVID-19 proved infection/clinically suspected COVID-19 infection/contacts of an index case with COVID-19 infection.

These recommendations will be regularly updated according to new evidence in the field.

There are three main new phenotypes of patients with OD related to COVID-19 infection:

- a) ICU. Patients in/post ICU with OD associated with intubation/mechanical ventilation or OD associated with tracheotomies or NG tubes (Code: Purple Color).
- b) Wards. Patients with respiratory infection/pneumonia/respiratory insufficiency, some of them with a severe disease needing high concentration of oxygen or noninvasive mechanical ventilation (Code: Red/Orange).
- c) Post-acute COVID-19 patients discharged from acute hospitals to rehabilitation centers, nursing homes or medicalized facilities including hotels, etc. (Code: Yellow/Green)

Assessment and management of OD in COVID-19 patients is a high-risk situation for healthcare professionals (HCP) and must be considered an aerosol-generating procedure. On the other hand, HCP should guarantee practices with zero risk of spreading the infection to patients.

As the provision of PPE is scarce, consider that the task of management of OD in COVID-19 patients should be shared with professionals in the multidisciplinary team (MDT, Nurses, Nursing Assistants...) that are trained and skilled in wearing PPE and are already working in COVID-19 wards.

SAFETY RULES. YOUR SAFETY FIRST.

1. **Covid Status.** Confirm the COVID status of the patient. Consider patients clinically suspected of COVID-19 infection/close contacts of an index case with COVID-19 infection to be positive as those with proved infection.
2. **Personal Protective Equipment (PPE).** To explore/assess a patient with OD or at risk of OD you must know and be specifically trained/accredited in how to use Personal Protective Equipment (PPE) for essential healthcare workers during COVID-19 pandemic. This includes certification of both the safety of the equipment and specific accredited training in how to use it safely and how to avoid self-contamination.

Management of aerosol-generating procedures performed on COVID-19 patients require training to use: Respirator N95 or FFP2/3 standard, or equivalent, liquid-proof gown or complete apron, gloves, hairnet and closed eye protection or face shield.

https://apps.who.int/iris/bitstream/handle/10665/331498/WHO-2019-nCoV-IPCPE_use-2020.2-eng.pdf

<https://www.rcslt.org/-/media/docs/Covid/RCSLT-PPE-guidance-27-March-2020.pdf?la=en&hash=22F876E1C13587A0904D34149D02D7ECFEC15FBC>

If not available (no accredited equipment or training), do not explore the patient, the risk of infection is extremely high.

3. Managing patient aerosol production (cough, sneeze, choking, etc).

The best way is to place a surgical mask on the patient, to protect you from their aerosols during the procedure. But this is rarely feasible when patients are assessed for OD. Option: Wear the PPE and use a transparent shield placed between you and the patient during the procedure.

If you cannot control and minimize your exposure to patient aerosols during the procedure, the risk of infection is very high, do not assess the patient.

ASSESSMENT ADVICE FOR OD

4. Temporarily postpone all elective, nonurgent assessments and procedures. During the COVID pandemic we recommend to assess patients for OD clinically and avoid all instrumental explorations (FEES, VFSS, Manometry). Instruments must be carefully cleaned with virucidal disinfectants. Aerosol-generating procedures in a medical facility can produce aerosolized particles that can stay in the air during hours, and in some surfaces during days.

5. Assess for OD only conscious, fully awake patients in a stable respiratory situation and optimal PaO₂/FiO₂ (ask physicians in the MDT). Explore the patient in a correct position. Remove Monaghan masks, oxygen masks and use nasal cannulas (2-3 L/min) to provide oxygen therapy. Use pulse oximetry during the V-VST to monitor patient's vital signs during the procedure.

6. Clinical assessment of OD with clinical observation and V-VST.

- **FIRST, OBSERVE** if patient refers or presents clinical signs or symptoms for OD. Be aware that spontaneous cough might interfere with OD assessment. Respect the safety distance of 2 m with the patient and wear your PPE.
- **IF NEEDED, EXPLORE.** Use the V-VST to explore safety and efficacy of swallow and select the optimal bolus volume and viscosity for each patient with/at risk of OD. The V-VST is a validated clinical assessment tool that uses different volumes (5, 10 and 20mL) and viscosities (nectar, liquid and pudding) to evaluate clinical signs of impaired efficacy and safety of swallow. Diagnostic sensitivity and specificity for OD are 0.94 and 0.88 respectively, and the reliability of V-VST is also high with an overall Kappa value of 0.628 (95% CI = 0.45–0.78).
- Please concentrate on the safety of the patient's swallow, and safety of the explorer, wear your PPE and do the test as quickly as possible.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4282313/pdf/nmo0026-1256.pdf>
- Post-extubation oropharyngeal dysphagia can affect up to 1/3 of COVID-19 intubated patients and lead to severe complications such as aspiration pneumonia, reintubation, and mortality. Explore post-extubation patients with symptoms/signs of OD from Day 1 with V-VST and repeat the test at different moments of patient stay.
- COVID+ who underwent tracheotomy should wear a cuffed non-fenestrated tracheostomy tube; clinical swallow exploration for OD with V-VST must always be performed with the cuff inflated to minimize cough and aerosol generation. Also consider the use of a dye to improve the diagnosis of aspiration.

7. Assess nutritional status, oral health status, dentition and masticatory function by clinical history, anamnesis and scales (MUST, NRS, MNA-sf, OHI-s, TOMASS, meal observation, swallowing-breathing coordination and fatigue should be clinically assessed).

- Nutritional screening is recommended (MUST -for adults-, NRS 2002 - hospitalized patients, or MNA-sf -older people-) within 48 hours after hospital admission for all patients.
- Patients who remain in the intensive care unit (ICU) for more than 48 hours should be considered at risk of malnutrition and dietitians/nutritionists must be involved early in the MDT and individualized nutritional therapy provided.
https://www.espen.org/files/Espen_expert_statements_and_practical_guidance_for_nutritional_management_of_individuals_with_sars-cov-2_infection.pdf

TREATMENT ADVICE FOR OD

8. No active treatments for OD during COVID-19 pandemic are recommended. Do not involve healthcare professionals (SLP, physicians, PT, OT, nurses, etc...) in any active treatment as the risk of aerosol generation and infection is high.

9. Apply compensatory strategies instead of active treatments to all patients with OD. Answer two main questions: Can I improve safety and efficacy of swallow for water/alimentary fluids and solid foods? Follow the Minimal Massive Intervention procedure, including:

<https://www.ncbi.nlm.nih.gov/pubmed/29806864>

- Right Posture during meals, chin down when necessary. If the patient's clinical situation allows, remove Monaghan masks, oxygen masks and use nasal cannulas (2 – 3 L/min) to provide oxygen therapy during meal times and hydration periods.
- Promote self-feeding and encourage the patient to be autonomous for eating and drinking. If the patient needs assistance to eat or drink, HCP should wear a PPE and use the transparent shield placed between them and the patient.
- Hydration and Alimentary Fluids: Use the optimal viscosity according the V-VST; select 250 or 800 mPa.s for each patient.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6852432/pdf/NMO-31-na.pdf>
- Nutrition and texture modified foods. Adapt solid foods in all patients with OD according to the triple adaptation (texture, caloric and protein content, palatability). Select the optimal texture (thick purée and fork-mashable) according to the mastication and swallowing capacity of patients and the caloric and protein content according to MNAS-f in older people or MUST or NRS in adults.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6412386/pdf/nutrients-11-00425.pdf>
- If needed, discuss the Caloric and Protein intake and use of Oral Nutritional Supplements or enteral nutrition for acute phase with the dietitian of the MDT.
https://www.espen.org/files/Espen_expert_statements_and_practical_guidance_for_nutritional_management_of_individuals_with_sars-cov-2_infection.pdf
- If enteral nutrition is needed, do not combine with oral intake in patients with COVID-19 infection as the risk of aerosol generation is very high; NG tube is recommended, and PEG insertion should be postponed
- Oral health: patients will be advised to brush their teeth and use mouthwashes after each meal. If the patient is not autonomous, the HCPs should be equipped with PPE to perform oral hygiene. If you cannot control and minimize your exposure to aerosols during the procedure, the risk of infection is very high, do not perform the oral hygiene to the patient.

10. OD, COVID-19 and Tracheotomies.

- COVID+ who underwent tracheotomy should wear a cuffed non-fenestrated tracheostomy tube:
 - clinical exploration for OD with VVST must be always performed with cuff inflated, consider using a dye to assess aspiration.
 - cuff should be deflated only when risk of patient aerosols (cough, etc) disappear; or in patients with a tracheostomy that are autonomous for feeding, the cuff can be deflated during meal times.
- Patients with tracheostomy still needing respiratory support or mechanical ventilation should not be fed orally. When should the tracheostomy be removed? Only when the patient tolerates a closed tracheostomy tube without breathing problems and if he/she can manage secretions, discuss within MDT.

This expert opinion statement is endorsed by:

1) Ciberehd. Strategic Action in Oropharyngeal Dysphagia. Centro de Investigación Biomédica en Red de Enfermedades Hepáticas y Digestivas. <https://www.ciberehd.org/>; 2) -Societat Catalana de Digestologia. Pla Estratègic en Disfàgia Orofàrìngia. <http://www.scdigestologia.org/>; 3) Hospital de Mataró. Consorci Sanitari del Maresme. <https://www.csdm.cat/>