新冠肺炎疫情下吞嚥治療的思維

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一、 前言:

新冠肺炎屬於可經由人與人接觸、飛沫、環境等媒介傳播的疾病，部份病患亦因合併吞嚥障礙需吞嚥治療。如何讓醫療人員在適當的個人防護下，提升病患的吞嚥功能，成為重要的議題。本篇主要介紹個人防護裝備(Personal Protective Equipment，PPE)分級、依產生氣霧微粒(Aerosol Generating Procedures，AGP)的風險為基礎的思維進行吞嚥評估及治療介紹。

二、 個人防護裝備分級 (Level of PPE):

依 Lammers 等人指出個人防護裝備可分三個等級，如表一。表中提到的 FFP2 口罩屬歐規，其過濾效能達 94%。而 PAPR 是「powered air-purifying respirator (PAPR)」縮寫，中文名稱為「動力濾淨式呼吸防護具」。其外型有點像全罩型安全帽，後方有管線可連接氧氣提供設備。

表一 Summary of Personal Protective Equipment levels for Health Care Workers during COVID-19 Pandemic

Level 1 PPE	Level 2 PPE	Level 3 PPE
Surgical mask	**N95/FFP2**	**PAPR or N95/FFP2 + surgical mask**
Gown[b]	**Water impermeable gown**	**Gowns:** **1. coverall +gown**[a] **2. water impermeable gown**
Gloves	**Double gloves**	**Double gloves**
Face shield / goggles[b]	**Goggles / face shield**	**Goggles + (face shield)**
Head cover (optional)	**Head cover, including neck protection**	**Head cover, including neck protection**

[a]Coverall with integrated hood and boots is preferred over gown with separate boot and leg covers and head-neck cover, since it reduces the risk of self-contamination during doffing and will provide optimal protection. A single layer surgical water impermeable gown (AAMI level 4), with a surgical hood or PAPR, and separate boot and leg covers, will provide a similar level of protection. If surgical hoods and PAPRs are not available or cannot be used during the procedure, a surgical gown (AAMI level 4) with properly fitting head and neck cover and goggles will provide adequate protection. Coveralls have to be used in conjunction with a second sterile surgical gown, when used during surgery

[b]Gown and face shield/goggles are recommended when providing direct patient care to COVID-19 patients and optional for in office non-AGMPs in negative or low risk patients, and only advised if there is a risk of fluid spread

取自: Marc J W Lammers, Jane Lea, Brian D Westerberg.Guidance for otolaryngology health care workers performing aerosol generating medical procedures during the COVID-19 pandemic. J Otolaryngol Head Neck Surg. 2020 Jun 3;49(1):36. doi: 10.1186/s40463-020-00429-2.

醫療人員了解 PPE 的等級分類後，可再依以下三項條件，決定選用哪一等級的個人防護裝備，如表二。

1. 處置產生氣霧微粒的風險: 不產生風險、產生風險。
2. 病患症狀: 有症狀、無症狀。
3. 病患確診狀況: 陰性或未明、待報告、已確診或高危險群。

舉例如在復健科病房中沒有症狀的個案，接受復健治療時，只需要第一等級的 PPE。但如該病患需要換氣切管、換鼻胃管時，因屬於產生氣霧微粒的處置，則第一、二等級的 PPE 均可考慮。

表二 Summary of recommendations for minimum Personal Protective Equipment for Health Care Workers during COVID-19 Pandemic

	Level 1 PPE	Level 2 PPE	Level 3 PPE
FOR NON-AGMP PROCEDURES			
Asymptomatic + SARS-CoV-2 negative or unknown	X		
Symptomatic + SARS-CoV-2 negative	X		
Symptomatic + SARS-CoV-2 positive or high risk	X[a]	X[a]	
FOR AGMP PROCEDURES			
Asymptomatic + SARS-CoV-2 negative	X[b]	X[b]	
Asymptomatic + SARS-CoV-2 pending		X	
Symptomatic + SARS-CoV-2 negative		X	
Symptomatic + SARS-CoV-2 pending due to urgency		X[c]	X[c]
Symptomatic + SARS-CoV-2 positive		X[c]	X[c]

[a]This depends on the type and duration of examination and procedure. When there is a prolonged exposure of the HCW within the respiratory cloud of the patient, Level 2 PPE is advised
[b]This depends on the local COVID-19 prevalence, test reliability and type and duration of AGMP. In favourable situations Level 1 PPE is adequate
[c]This depends on the type and duration of AGMP and patient population: for a short duration, low risk AGMP, like intubation, Level 2 PPE is adequate, whereas for procedures with prolonged aerosol formation, like sinonasal surgery using drills, a higher level of protection may be warranted

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三、 吞嚥評估：

依 Aoyagi 等人的建議，常用的吞嚥篩檢評估為 EAT-10 questionnaire、repetitive saliva swallowing test 及 water swallowing test。但因 water swallowing test 屬於高風險產生氣霧微粒的評估方式，醫療人員務必注意個人防護。

而標準吞嚥檢查 FESS (Fiberoptic endoscopic examination of swallowing)及 VFSS (videofluorographic swallowing study)兩者也同樣屬高風險產生氣霧微粒的檢查，建議縮短檢查時間。Aoyagi 等人在 2020 年疫情嚴峻時期，如非緊急需求，不會安排 FESS 或 VFSS 檢查。如屬於緊急病患，並已確定屬新冠肺炎陰性病患，醫療

人員是穿著第一等級的個人防護裝備。如屬於 COVID-19 陽性個案，則會等待兩次核酸檢測(PCR)結果為陰性時，才會安排檢查，醫療人員是穿著更高等級的個人防護裝備。

四、 吞嚥治療：

1. 在疫情期間進行吞嚥治療的一般原則包括以下五點:
   （1） 穿著個人防護裝備，包括:戴口罩、手套、隔離衣和面罩。
   （2） 不要與病患面對面坐，而是並排坐或與患者成 90 度坐。
   （3） 保持一定距離，只有在需要觀察口腔黏膜、舌頭、牙齒和上顎時才靠近病患。
   （4） 保持治療室通風良好。
   （5） 每次治療課程結束後，使用酒精對接觸過的物體（桌子、椅子、門把、鉛筆、文件、電話、鍵盤、平板電腦等）進行清潔和消毒。

2. 針對已確診的新冠肺炎病患，Aoyagi 等人建議先以保守性治療為主，如食物調整、改變吞嚥策略等，病患尚未痊癒前，要避免主動吞嚥運動方式。

3. 病患如需要進行主動吞嚥運動方式時，醫療人員需要先評估吞嚥運動方式產生氣霧微粒的風險。雖然目前美國語言聽力協會(American Speech-Language-Hearing Association)及日本吞嚥復健學會(the Japanese Society of Dysphagia Rehabilitation)仍未對各種吞嚥運動方式的風險性有明確共識，但兩學會都一致呼籲醫療人員務必注意這一議題。因此，Aoyagi 等人在論文中分享其醫院的方式，供大家參考，如表三。

表三	Risk for aerosol generating: Low	Risk for aerosol generating: High
Oral element-based exercise[a]	• Range-of-motion exercise of jaw, lip, cheek, and tongue Voice production exercise • Tongue resistance–strengthening exercise - Tongue elevation exercise - Isometric progressive resistance oropharyngeal therapy - Tongue rotatory lateral exercise • Cheek puffing exercise • Chewing exercise using gum covered with gauze • Oral motor control exercise	• Voice production exercise
Pharyngeal element-based exercise	• Tongue retraction exercise • Shaker exercise • Head raising exercise • Jaw opening exercise • Tongue holding swallow	• Cough exercise • Strengthening vocal cord closure exercise • Expiratory muscle strength training • Blowing exercise
Behavior-based exercise [b] with facilitation techniques	• Thermal, tactile stimulation • K-point stimulation	• Tube swallowing exercise (for those who cough) • Balloon dilation (for those who cough)
Behavior-based exercise with target-oriented methods	• Mendelsohn maneuver • Effortful swallow	• Supraglottic swallow, super supraglottic swallow • Direct exercise (for those who cough frequently)
Others	• Stretching of head and neck • Oral care	
Education	• Self-training • Instructing patients and patient's family	

[a] Element-based exercises target the neuromuscular control, which is a prerequisite of swallowing function.
[b] Behavior-based exercises promote therapeutic learning by integrating all the activity-dependent elements to the actual swallowing behavior.

取自: Yoichiro Aoyagi, Yoko Inamoto, Seiko Shibata, Hitoshi Kagaya, Yohei Otaka, Eiichi Saitoh. Clinical Manifestation, Evaluation, and Rehabilitative Strategy of Dysphagia Associated With COVID-19. Am J Phys Med Rehabil 2021 May 1;100(5):424-431

五、 總結:

本篇主要以兼顧醫療人員安全防護及新冠肺炎病患之吞嚥治療，提供了新的評估及治療策略。另由於各地的醫療背景及資源的不同，建議醫療人員亦需依照您的環境而適時調整。

六、參考文獻:

1. Marc J W Lammers, Jane Lea, Brian D Westerberg. Guidance for otolaryngology health care workers performing aerosol generating medical procedures during the COVID-19 pandemic. J Otolaryngol Head Neck Surg. 2020 Jun 3;49(1):36. doi: 10.1186/s40463-020-00429-2.
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