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Aidaa guidelines for extubation

Editor - We read with interest editorials' critical airway management in intensive care unit: Uniformity in practice? 'By Quintard and colleagues. 1Quitard H. Higgs A. Lyons G. Pottecher J. Critical Airway Management in Intensive Care Unit: Uniformity in Practice?. The editorial compared the national guidelines published from Britain and France for the management of trachea in critically ill adults. 2Quantard H'l' his E. Pottecher J et al. Icu patient's intubation and extension., 3Higgs A. McGrath B.A. College of Anaesthetist Guidelines for management of trachea intubation in severely ill adults, on behalf of the Goddard C et al., the Tougher Airway Society, Intensive Care Society, Faculty of Intensive Care Medicine, inhaled adults. Given that the British Journal of Anaesthesia is indeed an international journal, we think it is important to provide readers with a fair discussion of other existing guidelines, including beyond Europe. The All India Difficult Airways Association (AIDAA) published the first guidelines on trachea intubation in ICU in December 2016. 4Myatra S.N. Ahmed S. M Kundra p et al. Guidelines for Traffic Institute in All India Hard Airways Association 2016 ICU. The French National Guidelines for Intument and Extubation of ICU Patients was published in October 2017, and uk guidelines for the management of trachea in critically ill adults were published in February 2018. 2 Quintard H L'E Potesar J et al. Icu patient's intubation and extension., 3Higgs A. McGrath B.A. College of Anaesthetist Guidelines for management of trachea intubation in severely ill adults, on behalf of the Goddard C et al., the Tougher Airway Society, Intensive Care Society, Faculty of Intensive Care Medicine, inhaled adults. While uk and French guidelines are discussed extensively and compared in editorials, aidaa guidelines are only given a passing mention as an 'old guideline'. 1Quanter H. Higgs A. Lyons G. Pottecher J. Critical Airway Management in Intensive Care Unit: Uniformity in Behavior?. It is surprising to consider that all three guidelines were published within a period of 15 months. Incidentally, the citation refers to aidaa guidelines for unexpected difficult airways in adults rather than ICU.4Myatra S.N. Ahmed S. M Kundra p et al in Trachanali AIDAA guidelines for this. Guidelines for Traffic Institute in All India Hard Airways Association 2016 ICU. AidAA guidelines on trachea in the ICU have been presented at several international meetings and are among the five AIDAA guidelines included in the list of national society guidelines, which the editorial said is being considered to draft the project for universal management of airways (Puma;) guidelines. So we were surprised to see that aidaa guideline 4Myatra S.N. Ahmed S. M Kundra p et al. Guidelines for All India Difficult Airways Association 2016 Institution in ICU. The editorial has not been included for comparison. A unique feature of the AIDAA ICU guideline emphasizes preoxygenation and apnoic oxygen during the incubation process. We limited the number of indbation efforts based on the precarious physical condition of critically ill hypoxemic patients, and data from more than 2800 patients. In addition, we used the oxygen saturation limit value to restrict the number of attempts at installation or superglotic airway device insertion, and encouraged the use of an emergency crichothodotomy technology based on the airway operator's familiarity and availability of equipment, enabling it to be universally applied. We placed particular emphasis on humanitarian factors during the airway crisis. We include new - and what we consider more appropriate - terminology, for example, 'full ventilation failure', as part of the language vital during an airway crisis. 'Critical Language' refers to 'standardized communication', using specific words or phrases with clear, mutually agreed meaning, in order to avoid confusion and improve team position awareness. 6Critical Airways, critical language. We define full ventilation failure when ventilation using toubation, superaglotic airway device, and face masks have all failed after the best attempt, even if oxygen saturation is maintained. Full ventilation failure occurs before oxygen failure and is the appropriate trigger for emergency cricothroidectomy instead of decreasing oxygen saturation. The term 'no oxygen' is poorly understood, especially in the age of apnoic oxygenation, as a patient can be oxygenated for extended periods when ventilation fails. The AIDAA guidelines prefer the term 'emergency cricothyroidotomy' on other words used, as it is universally understood, to convey that there is a crisis, and also focuses on the preferred physical milestone to be targeted. Then, recognizing the importance of human factors, aidaa guidelines recommend a call for additional help when full ventilation failure is announced, while proceeding to an emergency cricothyroidotomy, in recognition that an additional person might be able to think more rationally and perform better in this situation. While all three guidelines provide evidence-based and stepwise approaches to trachea in ICU, there are subtle differences. Each guideline has many unique features that are important to share and can be useful for the reader. Comparing the three existing guidelines for trachea in ICU will add more value to this paper, while the reader will have to give a comprehensive view on the subject and current recommendations. The authors declare that there is no conflict of interest to them. In Critical Airway Management Care Unit: Uniformity in practice?. BR J. Anesth. 2019; 122: 533-536View articles in the detail of intubation and ICU patient. Anaesthesia Crit Care Pain Med. 2017; 36: 32741View in Article Guidelines for the Management of Trachea In Critically Ill Adults. BR J. Anesth. 2018; 120: 32352ACEed Articles Guidelines for Tracheal Installation in ICU in All India Hard Airways Association 2016. Indian J. Anesth. 2016; 60: Article 922-930View in emergency respiratory duct institration: Complications associated with repeated laryngoscopic attempts. Anesthetic analg. 2004; 99: Article Important Airways, 607-613View in important language. BR J. Anesth. 2017; 118: 649-654View in articles published online: May 20, 2019Access: April 8, 2019DOI: © 2019 British Journal of Anaesthesia. Elsevier Ltd. Published by Elsevier User License. How can you reuse permission for non-commercial purposes: Read, print and download text and data mine article translation not allowed to extract from articles in allowed parts or other functions selling final articles or use it again for commercial purposes using this article on science direct work closed premises? Learn about our remote access option Volume 75, issue 6 severe acute respiratory syndrome-corona virus-2, which causes coronavirus disease 2019 (COVID-19), is highly contagious. Airway management of patients with COVID-19 is high risk for staff and patients. We aimed to develop principles for airway management of patients with COVID-19 to encourage safe, accurate and rapid performance. This consensus statement has been brought together at short notice to advise on airway management for patients with COVID-19, drawing on published literature and information immediately available from physicians and experts. Recommendations on the prevention of contamination of health workers, the selection of staff involved in airway management, necessary training and the selection of equipment are discussed. These settings are described for the fundamental principles of airway management: emergency trachea institutation; predicted or unexpected difficult trachea institutation; cardiac arrest; anesthetic care; And the trachea exaltation. We provide statistics to support physicians in safe airway management of patients with COVID-19. The advice in this document is designed to be customized in line with local workplace policies. This consensus statement has been brought together at short notice to advise on airway management for patients with coronavirus disease 2019 (COVID-19). This applies to all those who manage airways ('airway managers'.) It draws on multiple sources, including relevant literature, but more immediately than information from practitioners practicing in airways specialists in China, Italy and britain. It is perhaps incomplete, but the principles have to provide an overview. It is not intended to offer or propagate personal devices. Advice in this Designed to be customized to suit local workplace policies. This document does not discuss when working outside its usual areas of expertise needed to intubate patients, making complex decisions around the ethics of care or an increase of compensation for employees. It does not discuss the treatment of COVID-19 nor intensive care ventilator strategies but rather it focuses on airway management in patients with COVID-19. A page summary (Fig 1) can be useful as a stand-alone resource, and the principles of safe, accurate and SWIFT management should always be considered (Fig 2). The full paper is likely to be of greater value as a reference when planning local services. The advice is based on available evidence and consensus at the time of writing, in what is a fast moving area. Some references refer to English or UK government sites for up-to-date advice. Those practising in other countries should be aware that advice in their country may be different and updated regularly, so they should also refer to their national guidance. Coronavirus disease 2019 a page summary for the patient's emergency breathing faucet. Coronavirus Disease 2019 Principles of Airway Management. Severe acute respiratory syndrome-corona virus-2 (SARS-COV-2), which causes COVID-19, is a single-stranded ribonucleic acid that explains the corona virus and is highly contagious. Transmission is mainly perceived by drop spread (i.e. relatively large particles that settle by air), and direct contact with patient or contaminated surfaces (fomites), rather than aerial diffusion, in which small particles now live 1, 2 in the air. Aerosols may be produced during initial airway management and in the intensive care unit (ICU) which will increase the risk of transmission 1. Treating patients with COVID-19 increases the risk of contracting health workers (HCW) disease 3-6. The major COVID-19 disease is a viral pneumonia. Airway interventions are mainly necessary to establish tracheal insubation and controlled ventilation. However, with the epidemic escalating, there will be many patients in the community with COVID-19 who are asymptomatic or have mild diseases. These patients may be present for emergency surgery for unrelated conditions. The highest viral load of SARS-COV-2 appears in sputum and upper airway secretion 1. Tracheal instuation is a potentially high-risk process for airways manager, especially as it is at risk of exposure to high viral load and if transmission is for HCWS, it may be associated with a more serious illness 4. For this reason, the airway managers should take proper care. This is clearly an area of great importance 7. While this article mainly focuses on managing airways, it is very important not to include the safety of employees. We discuss briefly: aerosol-generating processes and personal protective equipment are only part of a system to reduce viral exposure. There it is Advice that is regularly updated on infection prevention and control related to COVID-198. Severe acute respiratory syndrome-corona virus-2 is transmitted by the inhalation of an infected substance that contains the living virus (which can travel up to 2 meters) or by contacting contaminated surfaces. Aerosol-causing processes increase the risk of transmission of infection. A systematic review of infection risk for HCWS9, based on limited literature, places airway processes in decreasing order of risk: (1), breathing tube; (2), tracheostomy (and is considered for emergency front-neck airways (FONA)); (3), non-invasive ventilation (NIV); and (4), mask ventilation. Other possible aerosol-generating processes include: disconnection of ventilator circuits during use; trachea exaltation; cardiopulmonary resuscitation (before trachea intubation); bronchoscopy; and trachea suction without 'closed in-line system'. Transmission of infection is also likely to be possible from feces and blood, although the detection of the virus in the blood is relatively wacky 1. There is much debate about the extent to which high-flow nasal oxygen aerosol-generating and pathogenic transmission is an associated risk of 10. Older machines can expose employees to greater risk. The risk of bacterial transmission is estimated at least 11, but the risk of viral outbreaks has not been studied. There are other reasons not to use high-flow nasal oxygen in the event of mass disease and large-scale mechanical ventilation. Firstly, it can simply delay trachea in people for whom treatment enhancement is suitable 12. Second, the risk depleting very high oxygen use is a risk of oxygen stores, which is a risk as a hospital's oxygen use can increase manifold during an epidemic. For all these reasons, high flow nose oxygen is not currently recommended for these patients around the time of breathing taps. Low flow nasal oxygen (i.e. 5 l.min−1<) through normal nasal canula can provide some oxygen during apnoea and therefore the extent of hypoxymia during the respiratory tract may be delayed or decreased. There is no evidence that we are aware of the ability to generate viral aerosols, but on the balance of probability, considering evidence with high flow nose oxygen, it seems unlikely. It is neither recommended nor recommended against patients who are likely to have a little safer apnoea time during the emergency breathing tube. In patients who are not hypoxemic, without risk factors for a small safe apnoea time, and who are predicted to be easy to intubet, it is not recommended. Personal protective equipment (PPE) makes up only one part of a system to prevent pollution and infection of HCW during patient care. In addition to the PPE, procedures such as decontamination of surfaces and equipment, careful waste management for reducing unnecessary patient and surface contact and risk reduction are essential. Viruses can remain viable in the air for a longer period and on Surfaces for several hours or even 2 days. The importance of cleaning, equipment decontamination and the correct use of PPE use cannot be overstated. In the SARS epidemic, which was also caused by corona virus, HCW was at much higher risk for infection, but reliable use of PPE significantly reduced this risk to 13, 14. Personal protective equipment is not discussed in detail here. The general principles are that deleting after use without contaminating the user should be simple and avoid complex systems. It should cover the entire upper body. Whenever possible it should be disposable. It should be properly disposed immediately after removal ('doffing'). A 'large system' (supervisor) including checklist is recommended to ensure that holding and doffing are done correctly. Personal protective equipment should be used when managing all COVID-19 patients. Airborne precaution is minimally suitable for all airway management of patients with PPE known COVID-19 or those as if they are infected. The Intensive Care Society has made a statement on the PPE, describing minimum requirements and noting that the PPE needs to be safe, adequate and used in a way that ensures supply is sustainable 15. It has been suggested that double-glowing for trachea insubaation could provide additional protection and reduce the spread by alluvic contamination of equipment and surround 16. Fogging of Googles and/or eyewear when using PPE is a practical problem for tracheal installation in 80% of cases (personal communication Huafeng Wei, USA); Anti-fog measures and iodophohore or liquid soaps can improve it. Training and using PPE before patient management is essential for the safety of practice staff and patient. Ideally, patients are managed in single, negative pressure rooms with good rates of air exchange (>12 exchanges per hour) to reduce the risk of air exposure 17. In fact, many ICU side rooms do not meet this standard and, when critical care is extended to areas outside the ICU, airway management can be in rooms with positive pressure (such as operating theatres) or low air exchanges. Most operating theatres are positive pressure with high rates of air exchange. These factors could have implications for transmission risk, maintaining aerosols and therefore constituting the appropriate PPE 18. Guidance on PPE requirements after trachea installation is outside the scope of this Document 8. It is a high-risk process with physical difficulty: in this setting about 10% of patients develop severe hypoxymia (80% < SPO2) and experience cardiac arrest approximately 2%, 20. These figures are more likely for patients with severe COVID-19 and run some of the following theories. The first pass success rate of trachea in the critically ill is often up to 80% with up to 20% trachea 19 attempts . Increased risk of HCW infection during multiple airway manipulations of airway techniques that are reliable and maximize success for the first time. This is applied equally to the rescue techniques if the trachea instance fails in the first attempt. It is likely that extended critical care services will involve working in areas other than standard critical care units in management. This creates a logistical problem in airway management. Monitoring anaesthetist should adhere to the association of standards and, in particular, continuous wave capanography should be used for every trachea and in all patients dependent on mechanical ventilation unless it is impossible. Note that cardiac arrest during lung ventilation will also have a capnograph trace - indicates a flat trace and must be managed as oesophageal installation until otherwise proven ('No trace = wrong place') 21, 22. Caring for COVID-19 patients can also include recruiting staff to the critical care team who don't normally work in that setting and have received emergency training to enable them to deliver care with fully trained staff. In serious enlargement, even maintaining these standards can be difficult. The chief medical officer has written to all UK doctors asking them to explain regulatory support for this 23. At its peak, care can also be given by retired employees and medical students. Due to the high outcome nature of airway management in these patients, for both the patient and the staff, it is recommended that these employees do not participate in the airway management of COVID-19 patients regularly. In some circumstances, the development of a specific breathing tube titubation team can be a suitable solution where case load is sufficient. We recommend that the 'most appropriate' doctor manages the airways. It is to enable successful airway management that is safe, accurate and fast. Deciding who is the most suitable airway manager, there is a need to consider factors such as airway experience and expertise of available physicians, whether they fall into any group of physicians who would be wise to avoid inserting trachea, predicted difficulty of airway management, its urgency and whether a trachea team is available. On occasion, it may require senior anaesthetists managing airways in exchange for junior anaesthetists or intensivists who do not have an anaesthesia background. However, it is unlikely and unnecessary that breathing tube titubation will be the exclusive protection of a characteristic. Decision will be required. This is a problematic area and there is no national guidance. In some places, healthcare providers excluding employees who consider themselves high risk. Current evidence will include this group: older employees (mortality curve increases significantly to the age of 60 years; Heart disease; Chronic respiratory diseases; Diabetes; Recent cancer; And maybe hypertension 4, 6. While no clear evidence exists, it is also logical not to include staff who are immunosuppressed or pregnant Management of COVID-19 patients. Due to the uncertainties inherent in the new procedures to be followed, we recommend regular and complete in-situ simulations of planned procedures, in order to facilitate the familiarity and identification of otherwise unknown problems, before these procedures are used in immediate and accidental patient care situations. Where practical, single use tool 24 should be used. However, where the single use tool is not of the same quality as the reusable tool, it creates a struggle. It is also possible that the supply of single-use equipment may run low. The balance of risk to patients and staff (those involved in frontline and transport and decontamination of equipment) should be considered if a decision is made using reusable airway equipment. We recommend the use of devices most likely to succeed, while balancing the above factors. Reusable devices will require proper decontamination. It is important to properly follow the manufacturer's instructions for decontamination of reusable equipment. This document does not consider when patients' trachea should be intubated. However, to avoid aerosol-causing processes, it is likely that patients' trachea can be intubated earlier during their disease compared to other settings. Airway management for patients who are suspicious or confirm COVID-19 adheres to the same principles in both emergency and non-emergency settings (Fig. 1). To be ready. An institutional preparation (for management of equipment and difficulty for regular management; adequate number of properly trained staff; availability of trachea inspection checklist; PPE etc.) should be well in place before airway management is done. If it does not already exist, it is strongly recommended it is put in place urgently. With this guideline, resources can become part of that preparation. B. The team and individual preparation requires institutional preparation, the necessary skills, correct use of PPE and correct use and evaluation of PPE to predict difficulty and prepare airway strategy (Fig 3). It is accepted that Macocha (malmpatti, obstructive sleep apnoea, C-spine movement, mouth opening, coma, hypoxia, non-anaesthetist integrator 25) is not widely used but is valid and recommended. Macocha scores and predicts difficult indebration. Adapted to 23. Create a COVID-19 breathing faucet trolley or pack. Seriously ill patients may need an intubutt at a place other than the ICU. On the ICU, trachea installation will likely be in single rooms. Prepare a trachea indebration trolley or pack that can be transported to the patient and contaminated after use. Shows helpful information (Appendix S1) in online supplementary content and provides some guidance on its content. The strategy is made. Airway strategy (primary planning and rescue plans, and when they are transitioning) should be in place and information before any part of the airway team Management is there. Contains the smallest number of required employees. This is not an argument for single operators, but employees who have no direct role in the airway process should not be unnecessarily in the room where airway management is taking up speed. Three individuals are likely: an intubeter; An assistant; And a third person to give drugs and watch monitors. A runner should be watching from the outside and be able to summon help faster if necessary (Fig 4). Coronavirus disease makes personnel plan for the patient's trachea installation of 2019. Optimized by 20. Suitable wear, check PPE (see above). Even in an emergency and including cardiac arrest, the PPE must be in worn and must not expose himself to risks under any circumstances of the investigation before all airway management and staff. Avoid aerosol-producing processes wherever possible. If a suitable option is available, use it. If the aerosol generation occurs, the room is considered contaminated, the air precaution PPE should be used and the room should be cleaned deep after 20 minutes 24. Focus on promptness and reliability. The aim is to successfully achieve airway management in the first attempt. Don't rush, but each effort is the best it can be. Many efforts are likely to increase the risk for many employees and patients. Use techniques that are known to work reliably in a range of patients, in which to face difficulty. The actual technology may vary according to local practices and equipment. Where training and availability is in place is likely to include: the use of kit dump mats (Fig. 5); Ideal of kit dump mat. Emergency front neck airway kits can be kept out of the airway kit dump due to the risk of contamination and can be kept outside the room with immediate access if necessary. B. videolaringoscopy for trachea insyn operation; c A 2-person 2-hand mask ventilation with a VE-grip (Fig. 6); (a) two-handed two-person bag-mask technique with VE hand position; The second person squeezes the bag. (b) C hand position, which should be avoided. Reproduce with the permission of Dr. A. Matiok. d. A second generation superlotic airway device (SGA) (e.g. gel, ambu aura gain, LMA prosil, LMA protector) for airway rescue the most suitable airway manager should manage the airways. See above. Do not use techniques that you have not used or trained before. Then, for the reasons mentioned above, this is not the time to test new technologies. Make sure that all necessary airway kits are present in the room before trachea installation occurs. This includes airway trolley and cognitive support in line with the rescue strategy. Continuous wave capanography B working suction set d working by C ventilator, a monitoring a breathing tube checklist including intravenous check (i.v.) access (use Fig-7 and also see assistant information, Appendix S2). It is designed for preparation assistance and to be checked before entering Room as part of the preparation. Emergency respiratory tract institution checklist in the patient of coronavirus disease 2019. Optimized by 20 with permission. Use cognitive support if difficulty arises (Fig. 8). Airway difficulty leads to cognitive overload and failure to perform better. A cognitive support team will help focus and increase the transition through algorithms. Two algorithms are provided: which are derived from the Difficult Airway Society (DAS) 2018 guidelines for the inspiration of the critically ill 20, deliberately reduced the removed scope and options to adjust the current setting and encourage reliable and quick decision making and actions. Cognitive aids for use when managing unexpected difficulty while keeping the patient with coronavirus disease 2019 a little bit. (a) Unexpected difficult trachea. (b) Can't indobet, oxygen cannot. Optimized by 20 with permission. (c) Vortex approach of cognitive support. From 27 with permission. Use explicit language and closed loop communication. It can be difficult to communicate when wearing PPE and staff may be working outside normal areas of practice. Give simple instructions. Speak cleanly and loudly without shouting. What have you understood the person who spoke while receiving the instructions? If team members do not know each other well, a sticker with the person's name can be placed on top of the balcony for communication assistance with other employees. Rapid Sequence Induction (RSI) approach is likely to be adopted. The use of cricoid force is controversial 28, so use it where a trained assistant can apply it but remove it immediately if it contributes to tracheal discoloration difficulty. Careful pre-oxygen should be with a well-fitting mask for 3-5 minutes. A closed circuit is optimal (e.g. anesthetic circle breathing circuit) and a reprething circuit (e.g. Mapleson's C ('Waters') circuit is better for a bag-mask that expels the virus-containing gas in the room. Place a heat and moisture exchange (HME) filter between the catheter mount and circuit. Non-invasive ventilation should be avoided. High flow nasal oxygen is not recommended. Patient status, including ramping up in obese and reverse Trendelenburg conditions, must be adopted to maximize safe apnoea time. In agitated patients, delayed sequence trachea indjubation technique may be justified. If the risk of cardiovascular instability increases, ketamine 1-2 mg kg−1 is recommended to include anaesthesia. Roturium 1.2 mg−1 for neuromvascular blockade, should be given practically quickly. These measures reduce the patient's time and risk of coughing. If saxaethonium is used, the dose should be 1.5 mg kg −1. Ensure a complete neuromular blockade before attempting travel installation. A peripheral nerve stimulant probably used or waited 1 minute. Make sure the bolus or infusion for a Immediately available for the management of hypotension. To avoid - only after reliable loss of consciousness - If the seal is good, gentle continuous positive airway pressure (CPAP) can be applied to reduce the need for mask ventilation. Bag-mask ventilation can be used to assist ventilation and prevent hypoxia when indicated. Use Guedale Airway to maintain airway pattancy. Especially obese patients use 2-hand, 2-person techniques with a VE-grip to improve sealing in 29. When bag-mask ventilation is applied, minimum oxygen flow and airway pressure should be used to achieve this goal. Alternatively, after loss of consciousness and before inserting trachea, bag-masks change the role of ventilation or if it is difficult 7, 30. Laringoscopy should be done with the device most likely to get quick first pass breathing duct intubation in all circumstances in the hands of that operator – most likely to be a videolaryngoscope in the fully trained airway mangers. It is practical to enable optimal technology as far away from the airways, whatever device is used B using a videolaryngoscope with a separate screen enables the operator to stay ahead of the airways and this technique is recommended for those trained in their use. c If macintosh is using a videolaryngoscope with blades, a bogie can be used. d If using a videolaryngoscope with hyperingly blades, a styling is required. E where a videolarryngoscope is not used, The best option of a standard macintosh blade and a bogie (either pre-loaded or immediately available within the breathing tube) is F if using a bogie or styling, be careful when removing it so that women do not secrete sprays on indubating team intubatate with a breathing tube size 7.0-8.0 mm internal diameter (ID) or 8.0-9.0 mm ID in mens. , conform to local practice. Use a breathing tube with a subglytic suction port where possible. In the breathing tube, place the breathing tube without losing its sight on the screen and to avoid bronchial insertion, pass the cuff 1-2 cm under the cord. Inflate phlegm with air for measured cuff pressure of 20-30 cmH2O immediately after trachea institutation. Protect the respiratory tract normally. Start mechanical ventilation only after phlegm inflation. Make sure there is no leakage. Confirm trachea institutation with continuous wave capitaography. It can be difficult to confirm the exact depth of the entry. Air precaution the osculation of the chest is difficult while wearing PPE and is likely to be prone to the risk of statoscope and staff pollution, so it is not recommended. B is recommended looking for similar bilateral chest wall expansion with ventilation. Ultrasound or chest X-rays of the lungs may be required if there is a suspicion about bilateral lung ventilation. Once the record depth of the correct position breathing tube entry is prominently established. A after completion of trachea installation Pass the tube and subsequently ventilation is installed to reduce the need for intervention. If the patient has not yet been confirmed as COVID-19 Collect a deep trachea sample using closed suction for COVID-19 testing. Some upper airway samples are false negative. A visual record of breathing faucets on the patient's room should appear prominently (see also supporting information, Appendix S3). Basic algorithms for tracheal instothetic insucation can usefully follow the Simplified Slave 2018 guideline for trachea instothetics (figs 8A) or vortex approaches (fig 8c). If there is difficulty with tracheal insitation it should be managed according to the standard rescue algorithm with a focus on the following: an infection through algorithms immediately, consider reducing the number of attempts on each technique. b. Declare the team difficulty or failure at each stage. C mask ventilation can initially be postponed and the second-generation SGA used as an alternative between laryngoscopy attempts can be postponed. This can reduce aerosol production due to improved airway seal D if emergency FONA is required, the Simplified Slave 2018 guidance (Fig.8B) should be followed. Scalpel-bogie-tube technology is especially preferred in COVID-19 patients due to the risk of aerosolization with oxygen inflamation associated with canula techniques. To improve simplicity, we have only provided the option of scalpel-bogie-tube technology. If a different technology is specially adopted and trained in your department, it may also be appropriate. Where there is the problem, a hard airway plan should be recorded, prominently displayed and staff should be informed in shift change overs (an example of the ICU Airway Alert Form is shown in supplemental appendix S4). The choice of airway technology in a predicted difficult airways would be specific to the needs of the patient and therefore beyond the scope of this guideline. Many techniques for managing difficult airways will include potential aerosol-generated processes - see above. However there are reports from other countries of the use of awake respiratory tract intucation notes: a topicalization of airways will require careful consideration to reduce aerosol-causing processes and cough. B. Flexible bronchoscopy technology (whether it alone, through the SGA groove or with a videolaringgoscope, so-called video-assisted flexible installation) is likely to be aerosol-generating and therefore unlikely to be the first choice. C. Optional tracheal intuitation techniques include trachea intuitation through a SGA that includes the intubbing laryngeal mask airway (blind or flexible bronchoscope-assisted), or (video guidance and an aintree intuitation catheter). Use an HME filter close to the patient instead of a hot humidified circuit (wet circuit), but keep in mind that it does not get wet and blocked. Carefully monitor airway cuff pressure to avoid airway leakage. If using high airway pressure, make sure that the breathing tube cuff pressure peak is at least 5 cmH2O from inspiring pressure. cough May need to be increased There is no cuff leak to ensure any recruitment maneuvers. Monitor and record the trakical tube depth at every change to reduce the risk of displacement. Management of the risk of trachea tube displacement. This is a risk during patient repositioning which includes: prone condition; turning patients; nasogastric tube aspiration or status; trachea suction; and oral toilets. The depth of phlegm pressure and breathing tract should be examined and these procedures should be corrected both before and after. There is a risk of respiratory tract displacement during the s self-holding hold and it should be considered when formulating these (e.g. time, nursing attendance, etc.). Kissing. Wherever available, closed trachea suction is mandatory. Breathing tube cuff leakage. If a cuff leak develops to avoid aerosol-generation, while administering 100% oxygen and re-establishing for intubation. Immediately before re-intubization, stop the ventilator. Airway intervention. Physiotherapy and bagging, transfers, prone conditions, turning to the patient, tube repositioning. If intervention requires disconnection of ventilator from the breathing tube before airway interference: ensure a sufficient leadification. b. Consider administering neuromular blockade. Prevent C ventilator so that both ventilation and gas stop flow D clamp breathing tube separate the circuit with E HPE still patient F reverse avoid disconnection after reconnection associated with this process. Push-twist all connections to avoid the risk of accidental disconnection. Accidental disconnection. Stop the ventilator. Clamp the breathing tube. Immediately reconnect and open the breathing tube. Accidental ex-ation. It must be managed as usual, but management must be done before holding the absolute careful of the PPE before the patient participates, despite the clinical urgency. Trachostomi. This is a high-risk process due to aerosol-generation, and should be taken into account if considered. It may be prudent to delay the tracheostomy until the active COVID-19 disease is resolved. Actively heated and humidified 'wet circuits' can be avoided after trappial installation to avoid viral load present in the ventilator circuit. This will theoretically reduce the risk of room pollution if there is an unexpected circuit disconnection. If it gets wet, the filter is prone to block. This will cause blockage of filters and may be mistaken for the patient's decline, which it may also cause then. Consider whether the HME filter is wet and blocked if the patient has difficulty in deterioration or ventilation. If the HME filter is below the breathing tube or catheter mount, the condensed liquid can saturate the HME. This is especially likely if both an HME and a wet circuit are used together 31. Many ICS regularly increase patients' trachea and then immediately use high-flow nose oxygen for up to 24 hours. It is unlikely to be desirable or viable in patients with COVID-19. Trachea relaxation may be delayed, unless the pressure of the beds is otherwise demanded. Efforts should be made to reduce coughing and to be exposed to infected secretions at this time. Do normally appropriate physiotherapy and trachea and oral suction before exuberation. b Before expatbation mask or low flow (< 5 l.min−1) Prepare and check all the necessary equipment for nasal canula oxygen delivery. After C extubation, make sure that the patient immediately wears a facemask as well as their oxygen mask or nasal canula where it is practical. During D. Anaesthesia, drugs to reduce cough in emergence include dexmemetomidine, lidocaine and opioid 32. Their value is unproven in critical care and needs to be balanced against the adverse effects on respiratory drive, neuromvascular function and blood pressure. For these reasons, regular use is currently unlikely. E While an SGA can be considered as a bridge for exuberation to reduce cough it involves the possibility of airway difficulty after a second procedure and SGA placement so a first line process is unlikely to be 33, 34. F Similarly, the use of airway exchange catheter is relatively contra-indicated in a patient with COVID-19 due to possible cough, etc. The UK Resuscitation Council has published statements on the management of cardiac arrest in patients with COVID-1935. Airway procedures initiated during the management of cardiac arrest are likely to expose rescuers to the risk of viral transmission. Minimum PPE requirements are to assess a patient, initiate chest compression and establish a FFP3 facemask, eye protection, plastic apron, and gloves to monitor cardiac arrest rhythm. 35. Avoid listening or feeling to breathe by placing your ears and cheeks close to the patient's mouth. Early trachea insure with a cuff breathing tube should be aimed at a cuff in the presence of a trained airway manager. Previously, the insertion of a SGA can lead to ventilation of the lungs with lower aerosol production than facemask ventilation. In the absence of a trained airway manager, rescuers must use the airway techniques in which they are trained. The insertion of SGA on facemask ventilation should take priority to reduce aerosol production. An SGA with a high sealing pressure should be used in preference to one with a low seal. This will usually be a second-generation SGA where available. While it is beyond the scope of this document to define which patients need precautions, it is worth noting that patients with COVID-19 but infected 36-39 may be asymptomatic, although symptomatic patients are more likely to pose a risk of transmission. During an epidemic, there should be a very low limit to consider a patient at risk of getting infected and it may be necessary to treat all airway interventions as a high risk. Decisions around airway management must be made using the fundamental principles described above. Airway management should be safe, accurate and fast. There it is The use of SGA on facemask ventilation should also have a lower limit and a lower limit for tracheatation. If using SGA, to avoid airway leakage, spontaneous ventilation can be preferred for controlled ventilation. The drug options may vary when giving a little time to a patient with a serious illness and especially if the patient is not systematically unwell, ketamine cannot be chosen as an induction agent. Note that trachea institutation is associated with more coughing on expatbation than being used for a SGA. Avoiding this may be the use of a SGA rather than the emergence of trachea intuitation B. To replace a breathing tube to an SHA before the emergence of C, the use of VAC or intracuff lidocaine; i.v. dexmedetomidine; Opioids (such as fentanyl, rephentenyl) before exuberation. The management of patients with known or suspected COVID-19 requires specific consideration for protection for staff and patients. Accuracy is important, and physicians must avoid unreliable, unfamiliar or repeated techniques during airway management, thus enabling it to be safe, accurate and rapid. Swift care means it is timely, un crowded and so on without delay. We have highlighted the principles that can achieve these goals, but with new evidence emerging, the details of these principles may be subject to change. The manuscript was reviewed by members of the five bodies of N. Crims, L. Duggan, F. Kelly, J. Nolan and the Core COVID-19 group. Kei is an editor for Anaesthesia. Thank you to Dr. A. Georgioo and Dr. S. Goldson for their contributions to the checklist. No external financing or other competing interests were declared. Filename description anae15054-sup-0001-AppendixS1.docxWord document, 2.2 MB Appendix S1. A COVID-19 airway trolley and sample material. anae15054-sup-0002-AppendixS2.jpgimage/jpg, 7.6 MB Appendix S2. Principles of airway management in a COVID-19 patient. Dr. A. Chan reintroduced with the permission of the Department of Anaesthesia and Intensive Care, Chinese University hong kong 26. anae15054-sup-0003-AppendixS3.docxWord document, 80 KB Appendix S3. Tracheal institutation details to appear in the patient's room or at the entrance. (Courtesy Royal United Hospital, Bath) anae15054-sup-0004-AppendixS4.docxWord Document, 16.9 KB Appendix S4. Difficult trachea installation scheme for communication between employees. Please note: The publisher is not responsible for the content or functionality of any helpful information supplied by the authors. Any questions (other than missing content) must be directed to the author corresponding to the article. 1Wang W, Xu Wai, Gao R, et al. Detection of SARS-COV-2 in various types of clinical samples. Journal of the American Medical Association 2020. Epub prints ahead of March 11. 2van Dorlen N, Bushmaker T, Morris DH, et al. Aerosol and surface stability of Hcovi-19 (SARS-COV-2) compared to SARS-COV-1. 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