

Management of Anticipated Difficult Airways in Patients in The Intensive Therapy Unit

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Abstract

The morbidity and mortality associated with the management of 'difficult airways' is high in critically ill patients. The priorities of airway management differ between critically ill patients and elective surgical patients. So 'airway danger' is significantly increased in the intensive therapy unit (ITU) in comparison to the operating theatre. Thus, difficult airway guidelines developed primarily for the operating theatre are not appropriate for critically ill patients. As a result, specific guidelines for the airway management of critically ill patients have been developed. These guidelines highlight the importance of identifying patients on ICU with a predicted or known difficult airway and creating a clear airway management strategy. The ITU Anticipated Difficult Airway Management Plan presented in this paper is a checklist which guides the development of a management strategy for a critically ill patient who may have a 'difficult airway.' The form facilitates documentation of the airway management plan and prompts the ITU team to ensure that the equipment and staff required will be available if necessary.

Short Communication

There is a high incidence of complications associated with the management of critically ill patients with 'difficult airways' [1-3]. Sadly, the resultant, largely preventable morbidity and mortality can be devastating to the patient.

Patients known to have a difficult airway are often admitted to the Intensive Therapy Unit (ITU) for monitoring and management (i.e. intubation, extubating or observation) [3]. For example, surgery to the head and neck can distort airway anatomy as a result of the pathology, the operative treatment or complications (e.g. oedema or haematoma). So, this cohort is often electively observed in the ITU in the immediate post-operative period when the risk of airway-related complications is highest.

Critical illness and its treatment can also make anatomically 'normal' airways 'difficult.' Fluid resuscitation, capillary leak syndromes, prone positioning and prolonged trans laryngeal endotracheal intubation can all distort airway anatomy. The 4th National Audit Project of the Royal College of Anaesthetists and Difficult Airway Society (NAP4) [1] highlighted the challenges of airway management in ITU patients. The priorities of airway management in critically ill patients differ from elective surgical patients. Furthermore, 'airway danger' is significantly increased in ITU in comparison to the operating theatre [1,2].

Difficult airway guidelines developed primarily for the operating theatre are therefore not appropriate for critically ill patients. The NAP4 report highlighted that many deaths associated with mismanagement of

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Patient Name
DOB
Hospital Number

ITU Anticipated Difficult Airway Management Plan

WHY IS AIRWAY DIFFICULT?	
ANTICIPATED PROBLEM	Intubation <input type="checkbox"/> Re-intubation after accidental extubation <input type="checkbox"/> Re-establishing tracheostomy after displacement <input type="checkbox"/> Difficult planned extubation <input type="checkbox"/>

Plan agreed with ITU consultant? N Y Name:

CALL FOR SENIOR HELP EARLY See contact details below	
Plan A	Mark Cricothyroid <input type="checkbox"/> Equipment & staff set up for FONA <input type="checkbox"/> Pre-procedure FONA <input type="checkbox"/> THRIVE <input type="checkbox"/> Difficult Airway Trolley [Drawer A B C D (circle)] <input type="checkbox"/> Fibreoptic 'scope <input type="checkbox"/>
Plan B	Difficult Airway Trolley [Drawer A B C D (circle)] <input type="checkbox"/> Fibreoptic 'scope <input type="checkbox"/>
Plan C	Difficult Airway Trolley [Drawer A B C D (circle)] <input type="checkbox"/> Fibreoptic 'scope <input type="checkbox"/>
Plan D	FONA <input type="checkbox"/> Difficult Airway Trolley [Drawer A B C D (circle)] <input type="checkbox"/> Fibreoptic 'scope <input type="checkbox"/>

CONFIRM (To be completed by shift coordinator at beginning of each shift)

DATE	../.. //.. //.. /	
Shift	Day	Night	Day	Night	Day	Night
Airway equipment available & checked						
Fibreoptic 'scope location						
ICU Consultant on call						
Resident medical staff aware of plan						

Name & Grade of Doctor: Signed.....

Emergency Contacts:

ITU resident	Pager
Anaesthetic resident	Pager
ENT / Max-Facs surgery resident	Pager

Figure 1: ITU Anticipated Difficult Airway Management Plan. This form which is based on the UK Guidelines for the management of tracheal intubation in critically ill adults [3] guides the development of an airway management strategy for a critically ill patient who may have a 'difficult airway.' The form facilitates documentation of the airway management plan and prompts the ITU team to ensure the equipment and staff required will be available if necessary.

patient's airways are avoidable. There are several concerns. Compared with the operating theatre setting, ITU teams often failed to identify high-risk patients and had higher rates of airway management overnight. Airway management in ITU was often performed by unskilled trainees without the immediate supervision of a senior clinician. In some cases, standard equipment for advanced airway management was not available. ITU teams were also criticised for failure to follow a structured guideline or plan for airway management. The standard of airway management was judged to be poor during many events on ITU [1].

Importantly, lack of skilled assistance and adequate equipment also impacts on the delivery of prompt, safe, skilled airway management - especially when difficulty occurs and non-standard plans are required [1]. In special circumstances different airway management strategies are required. Airway emergencies in critically ill patient can occur almost anywhere in the hospital. This presents logistical challenges because many of these locations are remote and none are designed with airway management in mind. So specific guidelines for the airway management of critically ill patients have been developed [3]. These guidelines highlight the importance of identifying patients on ICU with a predicted or known difficult airway and creating a clear airway strategy [3]. Once such patients have been identified

and a strategy has been developed it is important to ensure that this plan is communicated to the relevant stakeholders. It is also important to ensure that the equipment and staff with appropriate skills are available to enact the plan if required. The ITU Anticipated Difficult Airway Management Plan (Figure 1) is a checklist which guides the development of a management strategy for a critically ill patient who may have a difficult airway. The form (Figure 1) facilitates documentation of the airway management plan and prompts the ITU team to ensure that the required equipment and staff will be available if necessary.

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