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Question:

Do patients in the emergency department and ICU setting have an increased risk of postintubation complications compared to patients who are intubated in scheduled surgical appointments?

Summary:

Patients in a more urgent setting such as ICU or emergency department are put at a higher risk for complications during intubation. The main indication for intubation is when patients are in acute respiratory failure, unable to breathe on their own. (Carpio, 2021) They are at risk for hypoxemia during the intubation process and possible collapse of the cardiovascular system. (Carpio, 2021) Gas exchange impairment and muscle weakness can also be present. In an urgent situation the environment could play a role in these future complications. The equipment may not be readily available, the workspace may be inadequate, and the lighting might even have an impact on intubation. Complications may arise with intubation in the surgery setting as well, however they are less likely. With a scheduled surgery the intubation equipment will be set up and ready to go, the room will be well lit and intubation will ideally not be an urgent situation instead a planned intervention. The risks for complications associated with being on a ventilator significantly increase after 48 hours. Spending days on the ventilator can cause several complications that affect extubating. Laryngeal edema and airway obstruction after extubating is a major complication. (Kuriyama, 2020) Mucosal damage is caused by pressure and ischemia resulting in an inflammatory response. Laryngeal edema may compromise the airway making it

necessary for reintubation. Reintubation causes increased risk of morbidity, and a possible prolonged hospital stay. (Kuriyama, 2020)

#### Conclusion:

Being on a ventilator for a shorter amount of time has shown to lower the complications associated with mechanical ventilation. (Carpio, 2021) After surgery the patient will be extubated and will then start the recovery process. In the ICU setting, patients are on the ventilator for much longer periods of time. The difference in urgent setting versus planned intubation is the amount of time the patient spends on the ventilator. Although there are risks that come with intubation, many lives have been saved because of ventilators and the ability of the machine to breathe for patients in their weakest moments. (MacMillian, 2020) Maintaining a patent airway will always be priority with patients. Closely monitoring patients for any improvement in the ventilator settings is important in order for postintubation and preventing complications.

#### Primary:

Carpio, A. L. M. (2021, May 7). *Ventilator management*. StatPearls [Internet]. <https://www.ncbi.nlm.nih.gov/books/NBK448186/>.

#### Secondary:

Kuriyama, A., Jackson, J. L., & Kamei, J. (2020, November 7). *Performance of the cuff leak test in adults in predicting post-extubation airway complications: A systematic review and meta-analysis*. *Critical Care*. <https://ccforum.biomedcentral.com/articles/10.1186/s13054-020-03358-8>

#### Tertiary:

MacMillan, C. (2020, June 2). *Ventilators and COVID-19: What you need to know*. Yale Medicine. <https://www.yalemedicine.org/news/ventilators-covid-19>