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Approach to the assessment and management of airway and ventilation in deliberate self-harm

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Intensive care admission may be required for patients presenting with deliberate self-harm (DSH). This could be in terms of provision of organ support, either as cardiovascular or respiratory support and renal replacement therapy or for continuous monitoring (cardiac, respiratory, neuro) that enables early recognition of organ dysfunction and appropriate treatment.

The ABCDE of management of a critically ill patient is well known. Of these, the two major aspects of respiratory support are the establishment and maintenance of airway ("A"-airway) and ensuring adequate gas exchange ("B"-breathing). The airway may be compromised directly in DSH by the agent of self-harm, or indirectly, due to intubation and the occurrence of laryngeal edema. The mechanisms of airway compromise in DSH include the inability to protect airway due to reduced consciousness (e.g. benzodiazepine, narcotic overdose), airway obstruction due to excessive secretions (e.g. organophosphates), laryngeal edema (e.g. hair dye poisoning), laryngeal muscle dysfunction (e.g. organophosphates) and extrinsic compression of the airway as in hanging. Post extubation stridor is a well known complication of intubation and mechanical ventilation that can result in airway issues.

Ensuring adequacy of breathing entails adequate oxygenation and ventilation. Ventilation may be impacted by central nervous system depression as well as increased airway resistance and reduced compliance that may increase work of breathing and result in ventilatory fatigue. Oxygenation may be affected by problems with the alveolar-capillary interface, with ventilation perfusion mismatch being the most common cause of hypoxia. In the post-extubation setting patients may develop ventilatory problems due to respiratory muscle fatigue either due to the primary problem or secondary to critical illness polymyoneuropathy.

Management of airway and ventilation in DSH requires adequate knowledge of the possible causes as well as appropriate airway management and ventilatory support. The airway is generally secured by the placement of an endotracheal tube or by a tracheostomy (in the case of an obstructed airway). Ventilatory support can be in the form of non-invasive or invasive mechanical ventilation.