CAN’T INTUBATE CAN’T OXYGENATE (CICO)
Management of the Critically Obstructed Airway

Session 2: Supraglottic Rescue and Transition to Infraglottic Rescue

Format: Talk using case examples and discussion

Aims:
1. Presents Vortex model for supraglottic rescue and stresses importance of attempting all components before transitioning to infraglottic rescue
2. Explores clinical criteria for transitioning to infraglottic rescue using case examples

Duration: 25 minutes

Documents and resources: PowerPoint (Session 2)

Venue: Seminar room

Notes to accompany PowerPoint slides

Slide 1

No notes
‘Can’t Intubate Can’t Oxygenate’ or CICO is a serious situation that is often sub-optimally managed. There are a variety of reasons for this. Sometimes infraglottic rescue is embarked upon prematurely before reasonable attempts at supraglottic rescue have been made. On other occasions it is delayed as clinicians persist for too long with supraglottic rescue despite evidence it has failed. This presentation focuses on supraglottic airway rescue techniques. It aims are twofold. Firstly to improve our technique so CICO situations are avoided and secondly to provide a framework for supraglottic rescue that assists us to recognise and declare CICO.

The Difficult Airway Society algorithms are well known and well considered emergency algorithms that encourage anaesthetists to have plans for specific scenarios related to difficult intubation and face mask ventilation.

They are considered somewhat limited in the respect that actions leading up to can’t ventilate via face mask are presented as sequential steps assuming the starting point has been attempted endotracheal intubation.

In practice the journey taken to arrive at failed face mask ventilation will vary on a case by case basis an emergency algorithm that allows for flexible journeys would be beneficial.
The Vortex model of emergency airway management developed by Drs Nicholas Chrimes and Peter Fritz. We present it here as an example of an effective method for supraglottic airway rescue.
The model conceptually organises supraglottic airway management into the three categories of airway support which we have termed ‘lifelines’. These are: face mask ventilation, endotracheal intubation and ventilation via supraglottic devices such as the laryngeal mask airway. The model recommends that a CICO should be declared only after appropriate rescue attempts have been made in each lifeline and these have failed to restore a clear airway. It predicts that if a best attempt has failed in all three categories of airway support then it is inevitable that desaturation will follow, if it hasn’t occurred already. In this situation a surgical airway – or infraglottic airway rescue - should be attempted.

Now let’s look in more detail at the sequence of lifelines. The spiral yellow arrow illustrates passage between the three lifelines. The thick end starts with the technique in use when difficulty is first recognised. The direction of the spiral indicates the order with which the other two lifelines are attempted. This order is determined by the clinical situation. In the diagram shown face-mask ventilation is being used as the initial mode of airway management. Optimal attempts at face mask ventilation fail to achieve a clear airway whereupon endotracheal intubation is attempted followed by insertion of a supraglottic device such as a laryngeal mask airway.
The same approach applies in principle if the starting point is difficult endotracheal intubation or …

Unsuccessful insertion of a supraglottic device such as a laryngeal mask airway.

If any of these lifelines are successful restoring a clear airway then we move upwards and outwards toward the green rim of the funnel.

In contrast, as each lifeline fails we move deeper into the funnel and will continue to spiral down unless a clear airway can be restored. If a best attempt has failed in all three categories then it is inevitable that desaturation will follow, if it hasn’t occurred already. In this situation a surgical airway – or infraglottic airway rescue - should be attempted.
These principles are demonstrated in the following video which depicts management of a difficult airway in an unconscious patient in the emergency department

http://vimeopro.com/johnmackenzie/cant-intubate-cant-oxygenate/page/1
Password: CICO

In this case several basic airway manoeuvres are employed to clear the airway as part of a best attempt in this lifeline.
Several optimisation strategies are employed by the airway doctor over two separate attempts at intubation with face mask ventilation attempted in between.

As with the other lifelines there are a number of manoeuvres that can be performed to improve chances of success with the technique. We should consider the relative benefit of each of these and employ any that are feasible and appropriate to the circumstances.

There are no ideal number of attempts.

It's reasonable to have more than one attempt at a lifeline as long as a different manoeuvre is used within the lifeline.

Using the example of endotracheal intubation we might have an initial attempt optimising our chances by performing a few manoeuvres before we stop and reoxygenate with bag mask ventilation. A second attempt at intubation may be reasonable if additional manoeuvres can be employed by suitably trained personnel.
So how do we know whether we should persist with supraglottic rescue or declare a CICO situation?

Well firstly we should always persist with supraglottic airway rescue even after we have declared CICO and commenced infraglottic rescue.

Secondly we declare a CICO situation when a best attempt at all 3 supraglottic lifelines have been attempted and have not unsuccessfully cleared the airway.

Should we wait for oxygen saturations to fall?

The Vortex model recommends that we should not wait for saturations to fall before declaring CICO because it is inevitable if it hasn’t already occurred. In this sense declaring CICO early buys time and enables a surgical airway to be performed without prolonged desaturation.

In this presentation we recommend that a surgical airway or infraglottic rescue should only be performed if saturations are falling or are persistently low.

However to minimise the period of desaturation it’s important that we anticipate CICO and call for help during supraglottic rescue. To ensure we allow sufficient time to set up for infraglottic rescue we should verbalise the possibility of a CICO situation to the team and mobilise resources for infraglottic rescue once 2 of the 3 techniques have failed.