Re-audit on capnography in the Intensive Care units BHR Hospitals NHS Trust

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Background

Use of capnography is the golden standard for induction and maintenance of general anaesthesia that provides safe conditions for airway management. Its role in the modern anaesthetic practice is well established yet less utilised outside the operating theatre.

Following an investigation of a number of critical incidents that have occurred during the management of anaesthetised patients outside the operating theatre, in 2009 the **AAGBI** recommended “continuous capnography in all patients who are anaesthetised or intubated, regardless of their location in the hospital, or the type of airway device used.”[1]

Nevertheless, the safety guidelines published, it appeared that capnography compliance was still poor national wide. In 2011 the **4th National Audit Project of The Royal College of Anaesthetists** and the **Difficult Airway Society (NAP4)** found that “At least one in four major airway events reported to NAP4 was from ICU or the emergency department.”[2] and “Failure to use capnography in ventilated patients likely contributed to more than 70% of ICU related deaths.”[2]

Based on the above report, the **Intensive Care Society (ICS)** Safety, Standards and Quality Committee (UK) developed guidelines for the use of capnography in intensive care units recommending that:

- "Capnography should be used for all critically ill patients during the procedures of tracheostomy or endotracheal intubation when performed in the intensive care unit.”[3]
- "Continuous capnography should be used for all ventilated patients in the intensive care unit whose trachea is intubated.”[3]
- "Capnography should be used in all critically ill patients who require mechanical ventilation during inter-hospital or intra-hospital transfer.”[3]

In 2013, audit on the use of capnography in the intensive care units in our Trust revealed we have performed below the current standards with only 20% of intubated patients having continuous capnography in situ.

Aim

The aim of re-audit was to review the current practice of continuous capnography monitoring in the intensive care units and assure compliance with the guidelines outlined above.

Methods

A prospective survey was undertaken over 5 day period in 2017 using data collection-questionnaire. We recorded whether the patient was intubated or had a tracheostomy and if continuous capnography was present.

Results

24 ventilated patients were included where 14 had endotracheal and 10 tracheotomy tube in situ. All patients had continuous capnography monitoring present.

Conclusion

We fully comply with the Intensive Care Society (UK) / AAGBI recommendations.

Discussion

We acknowledge the fact we had a small sample size representing the re-audit findings however it did provide a sufficient evidence of the current practice in our intensive care units. It appeared we had a very poor compliance using ETCO2 monitoring on ICU back in 2013, likely related to lack of available equipment.[4] Newer technologies like Dräger® ventilators with inbuilt ETCO2 monitoring were implemented to help to achieve a hundred percent compliance with the current ICS and AAGBI standards while reassuring ultimate patient safety. Our Trust is currently working towards providing Portable, in-circuit, real-time, digital capnograph equipment to fulfil the requirements for continuous capnography in ventilated patients during transfer.

Dräger Evita Infinity V500

Portable real-time capnograph

Queen's Hospital NHS Trust Romford

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