Accuracy of Respiratory Rate Monitoring using a Non-Invasive Acoustic Method after General Anaesthesia.

Mimoz O., Benard T., Gaucher A., Frasca D., Debaene B. Br J Anaesth. 2012 May;108(5):872-5.

Background

Respiratory rate should be monitored continuously in the post-anaesthesia care unit (PACU) to avoid any delay in the detection of respiratory depression. Capnometry is the standard of care but in extubated patients requires a nasal cannula or a face mask that may be poorly tolerated or can be dislodged, leading to errors in data acquisition and false alarms. The value of a new non-invasive acoustic monitor in this setting has not been fully investigated.

Methods

Adult patients admitted to the PACU after general anaesthesia were included. After tracheal extubation, an adhesive sensor with an integrated acoustic transducer (RRaTM) was placed on the patient's throat and connected to its monitor while the patient breathed through a face mask with a carbon dioxide sampling port (CapnomaskTM) connected to a capnometer. Both the acoustic monitor and the capnometer were connected to a computer to record one pair of data per second for up to 60 min.

Results

Fifty-two patients, mean (range) age 54 (22-84) yr and BMI 26 (19-39) kg m(-2), were studied. Compared with capnometry, the bias and limits of agreement of the acoustic method were 0 (-1.4-1.4) bpm. The acoustic sensor was well tolerated while the face mask was removed by eight patients, leading to study discontinuation in two patients.

Conclusions

In extubated patients, continuous assessment of respiration rate with an acoustic monitor correlated well with capnometry.