



Title Systematic Review of the Clinical Effectiveness and Cost Effectiveness of Oesophageal Doppler Monitoring in Critically Ill and High Risk Surgical Patients

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Aim

To assess the clinical and cost effectiveness of oesophageal Doppler monitoring (ODM) compared with conventional clinical assessment and other methods of monitoring cardiovascular function.

Conclusions and results

More formal economic evaluation would allow better use of the available data. All identified studies were conducted in unconscious patients. However, further research is needed to evaluate new ODM probes that may be tolerated by awake patients. Given the paucity of the economic evidence base, any further primary research should include an economic evaluation, or should provide data suitable for use in an economic model. The AHRQ report contained 8 RCTs and was judged to be of high quality overall. Four comparisons were reported: ODM plus central venous pressure (CVP) monitoring plus conventional assessment (CA) vs CVP monitoring plus CA during surgery; ODM plus CA vs CVP monitoring plus CA during surgery; ODM plus CA vs CA during surgery; and ODM plus CVP monitoring plus CA vs CVP monitoring plus CA postoperatively. Five studies compared ODM plus CVP monitoring plus CA with CVP monitoring plus CA during surgery. There were fewer deaths (Peto odds ratio [OR] 0.13, 95% CI 0.02–0.96), fewer major complications (Peto OR 0.12, 95% CI 0.04–0.31), fewer total complications (fixed-effects OR 0.43, 95% CI 0.26–0.71) and shorter length of stay (pooled estimate not presented, 95% CI –2.21 to –0.57) in the ODM group. The results of the meta-analysis of mortality should be treated with caution owing to the low number of events and low overall number of patients in the combined totals. Three studies compared ODM plus CA with CA during surgery. There was no evidence of a difference in mortality (fixed-effects OR 0.81, 95% CI 0.23–2.77). Length of hospital stay was shorter in all three studies in the ODM group. Two studies compared ODM plus CVP monitoring plus CA vs CVP monitoring plus CA in critically ill patients. The patient groups were quite different (cardiac surgery and

major trauma) and neither study, nor a meta-analysis, showed a statistically significant difference in mortality (fixed-effects OR 0.84, 95% CI 0.41–1.70). Fewer patients in the ODM group experienced complications (OR 0.49, 95% CI 0.30–0.81) and both studies reported a statistically significant shorter median length of hospital stay in that group. No economic evaluations that met the inclusion criteria were identified from the literature, so a series of balance sheets was constructed. The results show that ODM strategies are likely to be cost effective.

Recommendations

See Executive Summary link at www.hta.ac.uk/project/1633.asp.

Methods

See Executive Summary link at www.hta.ac.uk/project/1633.asp.

Further research/reviews required

Although modest data are available, and consideration can be given to the balance of costs and benefits using the data from the balance sheets, more formal economic evaluation would be desirable to make better use of the data and to make valuations implicit in any decision more explicit. Furthermore, well-designed, multicenter RCTs are required among high-risk surgical patients to address the following question: Does ODM-guided fluid therapy plus conventional clinical assessment improve outcome with and without CVP monitoring compared with conventional clinical assessment with and without CVP monitoring? Newer ODM probes that may be tolerated by awake patients are now manufactured and further research is needed to evaluate these.