

3. “Depth of anaesthesia monitoring should be used in all patients who have surgery under anaesthesia with muscle relaxants”

CON: Prof. Robert Sneyd (Plymouth).

How big is the ‘problem’ anyhow? You have always managed without them, they are expensive, they are not evidenced, DOA monitoring might make things worse.

There is certainly plenty of techno-nonsense – monitors work on different physiological principles, secret signal processing algorithms and arbitrary uncalibrated numerical scales. Also, not only are DOA monitors not NICE approved, NICE doesn’t even think they are worth investigating....

How big is the ‘problem’ of awareness anyhow? We agree that it is about 0.15% for standard risk patients(1% high-risk patients) and agree that it is definitely damaging to patients - but how many of these are ‘serious’?

What Michel Struys will/won’t want to talk about.....

He’ll brag about: evidence from before and after introducing BIS, case series with and without BIS and a single RCT of BIS vs no BIS with a small impact on awareness (but only in high risk patients) and he’ll go on about trivial impacts on recovery room times and drug use.

He’ll keep quiet about: cost, the effectiveness of tightened up standard care, including the convincing evidence from these papers:

BIS vs tightened up care....Evidence of Risk Reduction byAnesthesia Protocol-Pollard 2007
“Our group gives anesthetics that are based on protocols for specific surgeries.” “These are balanced anesthetic protocols that rely heavily on halogenated anesthetic compounds combined with intravenous narcotics.” “This approach can be modified based on the patient’s physical status and surgical needs.” “The use of intravenous agents as the sole anesthetic is rarely used.”

Pollard RJ, et al. Anesthesiology. 2007;106:269-74

Risk Reduction-Anesthesia Protocol-Enlund 2002

Propofol TCI plus opioid (Fentanyl/alfentanil n=725 and Remifentanil n=3,130), TCI in 1,341)

Airway secured WITHOUT muscle relaxant., Propofol 2.5 mcg ml⁻¹ for LMA, 3.0 for ETT.

Muscle relaxants only used when surgically necessary (7% of patients).

When used propofol INCREASED to airway securing levels.

NO AWARENESS

Enlund M, Hassan HG. Acta Anaesthesiol Scand. 2002;46:345-9.

Risk reduction-B Unaware Study- Avidan MS et al, NEJM 2008; 358: 1097

‘High risk’ patients randomized to:

BIS monitoring (target 40-60) with alarms on OR End-tidal anesthetic gas (ETAG)

monitoring (target 0.7- 1.3 MAC, nitrous included) with alarms on

Definite awareness:

BIS group: 2 of 967 = 0.21% and ETAG group 2 of 974= 0.21% NO DIFFERENCE!

“Our findings do not support routine BIS monitoring as part of standard practice.”

“Although superficially attractive in terms of reduced drug costs and slightly accelerated progress of patients through care pathways, it is possible that this monitoring may encourage risky anaesthetic practice with perilously light anaesthetics becoming the norm.”

How about the economic benefits? They don't stack up either:

Effects of Bispectral Index Monitoring on Ambulatory Anesthesia: A Meta-Analysis of Randomized Controlled Trials and a Cost Analysis

meta-analysis of 1,260 patients/9 RCTs

Conclusions: Use of BIS modestly reduced anaesthetic consumption, risk of nausea and vomiting, and PACU time.

However, these benefits did not result in significant reduction in time until patient discharge from the Ambulatory Surgery Unit (ASU) and the cost of the BIS electrode more than offset any cost savings. *Anesthesiology*. 2004;101:311-5