

The use of bispectral index monitoring (BIS) in intensive care – a collaborative UK multiregion survey

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Introduction

The availability and use of Bispectral Index Monitoring (BIS) in ICUs throughout the UK varies considerably. Some units use BIS to titrate depth of sedation [1], although its use has only been validated in neurologically healthy patients [2] and it correlates poorly to the Sedation-Agitation Scale [3].

BIS monitoring may also potentially assist in preventing awareness during the use of neuromuscular blockade (NMB) and during invasive procedures, or to minimize over-sedation, which is associated with poorer clinical outcomes [4].

We conducted a multiregion survey to assess the current landscape of BIS use in UK ICUs.

Methods

Survey of clinical directors (CD's)

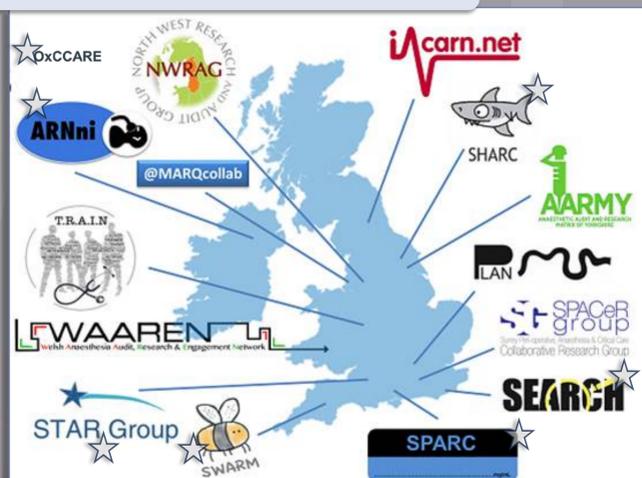
November 2014 to May 2015

- Representing 57 adult, paediatric, neurosurgical and cardiac ICUs in the UK.
- Survey was conducted by seven trainee-led regional research and audit groups.

Survey Content

- Availability of BIS on the unit
- Current uses for BIS and applicable patient groups
- Considerations for future BIS use

Trainee Networks (Starred)

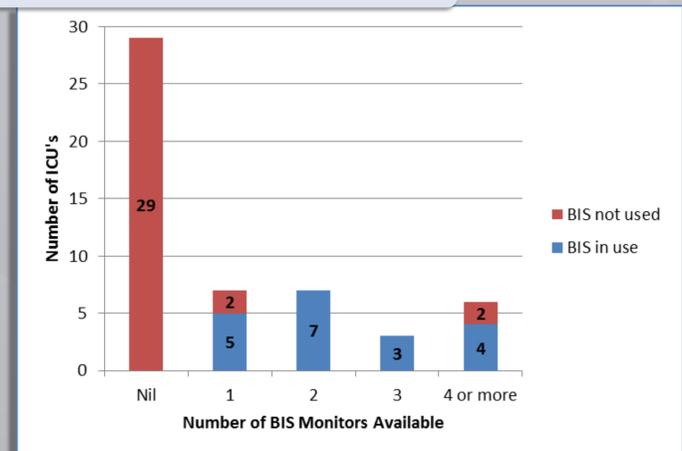


Results

51 CDs responded (89.5%)

- 23 units (45%) had at least one BIS monitor available for use.
- 19 (37%) were actively using BIS.
- 5 of 7 units with neurosurgical patients incorporated BIS into regular practice.

BIS Availability and Utilisation



Current Uses for BIS

| Current Use | Number of Units (%) |
|---|---------------------|
| Titration of sedation to prevent awareness whilst neuromuscular agents are being used | 16 (84%) |
| Titration of sedation to suppress seizure activity | 9 (47%) |
| Titration of sedation to prevent awareness during invasive procedures | 4 (21%) |
| Titration to avoid over sedation | 5 (26%) |
| Titration of sedation in context of elevated ICP | 2 (11%) |

Considerations for units without BIS Available

| Of the 28 units without BIS currently available: | Number of Units (%) |
|---|---------------------|
| Would NOT consider using BIS at present | 14 (50%) |
| Would consider to prevent awareness during NMB or invasive procedures | 15 (53%) |
| Would consider using to avoid over-sedation. | 7 (25%) |
| Would consider using to assist in suppressing seizure activity | 6 (21%) |

Discussion

- There are significant variations in practice regarding the use of BIS in the ICU.
- BIS seems to be used more widely in the neurosurgical patient population in the units we surveyed.
- There are many differing opinions regarding the use of BIS in the ICU setting
- More evidence is required before BIS use becomes standardised in the ICU.

References

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4. Bigham C, Bigham S, Jones C. Does the bispectral index monitor have a role in intensive care? *Journal of Intensive Care Society*. 2012; 13(4): 314-319.