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Brain Chaos – BAR Monitor

3 May 2007
 Imagine you're lying on an operating table undergoing surgery but before it's over, you wake up. It's not a pleasant thought but it can happen.

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Transcript

Cheryl Vernon: I thought myself I was moving my fingers or my toes or I was trying but then I realised that they couldn't see it, they didn't know and I'm thinking oh my God they don't know I'm here....



Narration: It was Cheryl Vernon's worst nightmare - she became conscious on the operating table.

Maryanne Demasi: A study revealed that up to one in 1000 patients become aware during an operation. In rare cases that number increased to one in one hundred patients.

But since the invention of machines like this it's reduced that number by 80 per cent

Kate Leslie: This monitor shows a typical EEG trace and number of patient who is awake.

Narration: Over the last decade, monitors that include measures of the brain's electrical activity, known as Electroencephalograms or EEGs, have done wonders to prevent patients waking up during surgery.

But a new invention - the BAR monitor - can also prevent the far more common side effects of too much anaesthetic.

Kate: Post-operative nausea and vomiting is a huge problem It affects about 20 per cent of patients having general anaesthesia.

It's a fine line between risking awareness from too little anaesthetic and getting nausea from too much.

And that's what this new monitor could prevent.

Mathematical mastermind David Liley developed the BAR monitor, based on complex mathematical and physiological analyses of brainwave activity

David Liley: Here one image represents the whole surface of the brain stretched into a square sheet ...

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Maryanne: So it's basically an animated way of describing the electrical impulses?

David Liley: Yes, basically brain waves.

What we do here is increase anaesthetic and more blue emerging and brain slow down

Maryanne: That's incredible

Narration: David's new invention is being put to the test at The Royal Melbourne Hospital by anaesthetist Kate Leslie.

Measurements of brain wave activity at different stages of anaesthesia are used to test the monitor's accuracy.

The first stage of anaesthesia is drowsiness ...

Kate: How are you feeling Roberta?

Narration: Then lack of eyelash reflexes ...

Then, failure to respond to command

Kate: Roberta? Roberta

And painful, in this case electrical, stimuli.

Kate: I'm just going to give you a little zap on the wrist ... and if you look at her face now [you can see] she didn't respond at all..

Narration: The information collected as the patient goes under, is sent back to David for analysis.

This is the second trial of the BAR monitor and like the first, it's proving to be very successful.

While current monitors do a good job of keeping patients sufficiently anaesthetised, this new Australian invention could also reduce nausea and vomiting after surgery.

Story Contacts

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