

Can 'daydreamers' wake from coma?

NORA SCHULTZ

DAYDREAMING your way out of a coma? Unlikely as it sounds keeping track of a wandering mind may one day help doctors to discover whether a brain-damaged individual is still "in there".

When a healthy person is daydreaming, their brain is not occupied with specific tasks and the "default network", a series of specific, connected regions in the brain's cortex, kicks in. The network's purpose is still hotly debated but recent evidence suggests it keeps the brain primed and ready to take on new tasks. Problems activating the default network have been linked to cognitive diseases like Alzheimer's and schizophrenia. Now Steven Laureys and

colleagues at the University of Liège in Belgium have used brain scans to measure the activity of the default network in 13 brain-damaged people whose levels of consciousness were different.

Their study, presented at this week's meeting of the European Neurology Society in Nice, France, found that activity varied in proportion to the amount of brain damage. Minimally conscious patients had a 10 per cent reduction compared to healthy individuals, while activity was reduced by 35 per cent in coma patients and those in a persistent vegetative state (PVS). There was no activity at all in the default network of a brain-dead patient.

Laureys concludes that such a scan could act as a "consciousness meter". "This could turn into an

utterly useful way to diagnose residual consciousness in brain-damaged patients," he says. Such a test could dramatically affect the fate of brain-damaged patients, by helping to determine whether to treat them with drugs or therapies, and in some cases, whether to keep them alive at all, says Laureys.

Usually, consciousness is measured by running a battery of behavioural tests. But these may miss some people who are minimally conscious. Two years ago, researchers at the University of Cambridge, together with Laureys's group, investigated an alternative. They found that the correct brain areas lit up in someone they thought was in a PVS when she was asked to imagine playing tennis. This indicated that she must in fact be conscious (*New Scientist*, 7 July 2007, p 40).

However, the test is difficult to carry out and negative results are hard to interpret as the patient may simply not be able to think about a particular task. Measuring activity in the resting brain is quicker – and doesn't depend on the patient responding. "We just scan someone for 10 minutes and get an easily quantifiable read-out," says Laureys.

John Whyte at the Moss Rehabilitation Research Institute in Philadelphia, Pennsylvania, who is testing drugs that may help restore consciousness, says that although larger studies are needed to determine how reliably the default network indicates consciousness, assessing awareness in the resting brain is crucial to treating unresponsive, brain-damaged patients: "To find the right treatments, we need to be able to classify [patients] better and resting assessments like this one should help with that."

Joseph Giacino at the JFK Medical Center in Edison, New Jersey, agrees: "If this can help us to sort patients by how well connected their brains are, we might be able to use it one day to better predict who will wake up and who won't." ●

SOUNDBITES

“It suddenly gave way and there was this roaring sound and we ran up the side of the hill.”

Chen Youfu, a construction worker trying to drain a lake at Majingxiang – one of many formed by landslides during the Sichuan earthquake – describes running for his life when part of the landslide barrier collapsed last weekend (Reuters, 7 June)

“If the virus had to cause an epidemic among the general population in India and China, as originally feared, why hasn't it happened?”

WHO director of HIV/AIDS Kevin De Cock, saying there is little threat of a heterosexual HIV epidemic ever occurring outside Africa (Times of India, June 10).

“We apologize, but our tomato salsa is temporarily unavailable.”

A statement from Chipotle Mexican Grill after it stopped serving salsa in its restaurants in 33 states after a massive Salmonella outbreak in US tomatoes. Walmart and McDonald's have also pulled some of their fresh tomato products (LA Times, June 9).

“How does it help us to announce these deaths? We will announce the toll periodically, every three months or so.”

Indonesian health minister Siti Fadilah Supari, saying she would no longer announce deaths from H5N1 bird flu when they occur. International health rules require timely notification of diseases that could be a global threat (AFP, June 5)

“It was big... It tried to have a go at my feet.”

Helena Nevalainen, a Swedish diver who was marooned on an Indonesian island with four others, spoke about how she had to fight off an aggressive komodo dragon, the largest lizard in the world. It lunged at her three times



No bad thing, a wandering mind