

In hospital, am losing my mind

A hidden epidemic facing elderly patients could be tackled by changing their hospital care

Peter Aldhous

DELIRIUM conjures up images of alcoholics hallucinating during withdrawal. But in fact this kind of mental confusion is a common complication of hospital admission – especially among people over 65.

Delirium is up there with diabetes as one of the biggest drains on healthcare systems, costing \$38 billion to \$152 billion per year in the US alone, and it exacts a terrible human toll. Patients who become delirious are more likely to die while in hospital and in the months after leaving, and many suffer permanent loss of their mental faculties.

Yet in many hospitals three-quarters of cases go undiagnosed. “This is a bomb, the fuse is lit, and no one even sees the burning fuse,” says Wesley Ely of Vanderbilt University in Nashville, Tennessee.

Defusing that bomb is a top priority for Ely and other specialists in delirium. Next month his team will start enrolling patients in a large study to determine whether giving antipsychotic drugs in an intensive care unit (ICU) can reduce delirium and subsequent cognitive decline.

Meanwhile, a team in Indianapolis has just begun taking patients who have spent time in an ICU into a new outpatient clinic. Doctors there will try to improve the prospects of those who developed delirium by applying lessons learned from treating Alzheimer’s disease.

Delirium affects around half of

elderly people having surgery to repair a hip fracture. In ICUs, rates may climb above 80 per cent. One reason so many of these cases go undiagnosed is that patients are often quiet and withdrawn rather than agitated and hallucinating. “They may not be climbing out of bed or pressing the call light,” says Donna Fick, a specialist in geriatric nursing at Pennsylvania State University in University Park.

Once dismissed as a clinical nuisance, it is now clear that delirium is in fact a medical emergency – each case missed is a terrible oversight. Last year, an international team including Ely’s group reported on 354 patients treated in ICUs across five countries, 228 of whom developed delirium. After adjusting for other factors, the duration of delirium was the strongest predictor of the

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subsequent death rate. Overall, 30.3 per cent of those who became delirious were dead within 30 days, compared to just 11.9 per cent of those who did not (*Critical Care Medicine*, DOI: 10.1097/ccm.0b013e3181f85759).

Patients who are already suffering from dementia are especially vulnerable to delirium and their plight is even less likely to be noticed than if they’d been cognitively well. Earlier this month, Fick and her colleague Melinda Steis reported that nurses caring for a group of

54 patients with dementia who developed delirium during their hospital stay failed to mention the new condition (*Journal of Gerontological Nursing*, DOI: 10.3928/00989134-20110706-01).

Evidence is mounting that even people who seem in full possession of their faculties when they arrive at hospital can go into a stark cognitive decline after suffering a bout of delirium. For instance, 53.8 per cent of a group of German patients aged 60 and above who became delirious after hip surgery were cognitively impaired more than three years later. Only 4.4 per cent of those who did not become delirious were affected (*Dementia and Geriatric Cognitive Disorders*, DOI: 10.1159/00014080). And last year,

Ely’s team showed that the longer delirium lasted in an ICU, the greater the degree of cognitive impairment 12 months later (*Critical Care Medicine*, DOI: 10.1097/ccm.0b013e3181e47be1).

“What we really need to understand is that there are many people living with an insidious decline in cognition that is not Alzheimer’s disease,” says Ely.

Perhaps the most shocking realisation is that delirium can be triggered by medication given in hospital. In general, drugs that boost activity of the neurotransmitter dopamine, or block the effects of acetylcholine, increase the risk of delirium. Sedatives that are widely prescribed in an ICU and to patients undergoing surgery seem to be particularly



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risky in this respect.

Last year, for instance, a team led by Frederick Sieber of Johns Hopkins University in Baltimore, Maryland, reported on a small study suggesting that lighter sedation in patients undergoing surgery to repair hip fractures could halve the incidence of delirium (*Mayo Clinic Proceedings*, DOI: 10.4065/mcp.2009.04609).

There's more to delirium than overprescribing sedatives, however. The causes of the condition are not fully understood, but risk factors include immobilisation, disturbed sleep and being on mechanical ventilation – all of which makes the ICU a dangerous place to be. Infections are especially likely to trigger delirium, particularly if they lead to sepsis,

in which the bloodstream is overwhelmed by bacteria.

With multiple risk factors, the problem has to be tackled on several fronts. The Hospital Elder Life Program (HELP) developed at Yale University aims to keep patients mobile, aware of their surroundings, and properly hydrated and nourished. It

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can reduce the risk of delirium by up to 40 per cent compared with patients not enrolled in HELP. And for vulnerable ICU patients, Ely has designed a suite of measures that he calls “ABCDE”, which includes reducing sedation

and weaning patients off mechanical ventilation as soon as is feasible (see “Prevention is better than cure”, right).

Not all cases of delirium can be prevented, though. So far, attempts to treat patients once the condition has set in have had disappointing results. Last year, for instance, Dutch researchers stopped a trial of rivastigmine, which boosts the effects of acetylcholine, when they discovered an increase in death rates and the duration of delirium – exactly the opposite of the anticipated effect (*The Lancet*, DOI: 10.1016/S0140-6736(10)61855-7).

There are hints that drugs that inhibit dopamine, including antipsychotics, might be useful – indeed, when doctors spot delirium, they often prescribe the antipsychotic haloperidol. Ely's new trial aims to provide a definitive answer, testing whether haloperidol and the newer antipsychotic ziprasidone are safe and effective in treating delirium in ICUs, and whether this reduces subsequent cognitive decline. The safety aspect will be crucial, because antipsychotics can increase death rates among elderly patients with dementia.

Meanwhile, Malaz Boustani and his colleagues at Indiana University in Indianapolis hope to build on their experience with Alzheimer's patients to improve prospects for people who become delirious in an ICU. Earlier this month, they opened an outpatient clinic at Wishard Memorial Hospital to follow patients who have been in an ICU. Patients will be monitored weekly, and given individually tailored treatments. These could include physical therapy, problem-solving exercises and avoiding drugs that inhibit acetylcholine.

The clinic will admit two new patients each week, and Boustani's team is using treatments shown to help elderly patients with dementia (*Ageing &*

PREVENTION IS BETTER THAN CURE

The key components of the ABCDE system for reducing delirium in intensive care

- Awakening:** wake from sedation at regular intervals
- Breathing:** daily tests of unassisted breathing, to reduce time on mechanical ventilation
- Choice of sedation:** use milder sedatives where possible; avoid those – such as benzodiazepines – known to increase the delirium risk
- Delirium monitoring:** evaluate regularly for signs of delirium using a validated screening test
- Early mobility and exercise:** get patients up and moving as soon as possible

Mental Health, DOI: 10.1080/13607863.2010.496445). Boustani is still seeking funds to evaluate the clinic's effectiveness, but didn't want to delay before putting his plan into action. “If it was my mom, I'd want her to get the state of the art right now,” he says.

Perhaps the biggest challenge, however, is getting healthcare managers to realise how serious delirium is, so that successful interventions can be more widely applied. “It's very much an awareness-raising issue,” says John Young of the University of Leeds, UK, who is leading a project that will test measures to prevent delirium in elderly patients in 12 English hospitals.

Young wanted to apply the Yale University HELP method, but realised that this would require additional specialised staff who aren't readily available in the UK's National Health Service. So he has had to devise a modified plan. “We don't know if this system is going to work,” he admits.

Given such obstacles, getting the word out about delirium's huge toll is crucial, says Ely. “There's a public health problem that people don't know about.” ■



Stay mobile to fend off delirium