In-facility delirium prevention programs as a patient safety strategy: a systematic review

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CRD summary
This review concluded that most multicomponent interventions were effective in preventing onset of delirium in at-risk patients in a hospital setting but there was insufficient evidence to determine the benefit of such programmes in other care settings. This conclusion reflects the consistent benefit seen across studies; the risk of bias is acknowledged. This conclusion is probably reliable.

Authors' objectives
To assess the benefits and harms of multicomponent interventions, including system-level changes, designed to prevent delirium in hospitals, palliative care centres and long-term care facilities.

Searching
Six databases including MEDLINE, CINAHL and EMBASE were searched from 1999 to September 2012. Search strategies were reported. Various journals, supplements, conference proceedings and other publications from professional organisations, private agencies and government organisations were searched. References of identified publications and grey literature were checked.

Study selection
Randomised controlled trials (RCTs), controlled clinical trials (CCTs), interrupted time series and controlled before-after studies with a prospective post-intervention portion were eligible for inclusion. Studies had to have at least 20 patients in each arm and to assess the benefits and harms of a multicomponent intervention designed to improve patient safety by preventing delirium in a hospitals, palliative care centre or long-term care facility.

Most included studies took place in hospital in-patient settings; palliative care and long-term care settings were also represented. It seemed that various multicomponent interventions were evaluated and included Hospital Elder Life Program (HELP) and proactive geriatric consultation. Key components of identified programmes were drawn from the list: anaesthesia protocols, assessment of bowel/bladder functions, early mobilisation, extra nutrition, geriatric consultation, hydration, medication review, pain management, prevention and treatment of medical complications, sleep enhancement, staff education, supplemental oxygen, therapeutic cognitive activities or orientation and vision and hearing protocols. Included studies were conducted in USA, Canada, UK, Sweden, Spain, Belgium, Italy, Australia, Chile and Taiwan.

Assessment of study quality
Studies were assessed for quality using criteria of the Cochrane Effective Practice and Organisation of Care Group. The overall risk of bias of a study was rated as high, moderate or low.

The authors did not state how many reviewers were involved in the assessment.

Data extraction
Details of the data extraction process were not reported. It appeared that data were extracted on the components of interventions and incidence of new-onset delirium and related outcomes and harms associated with the programmes. Data on the implementation methods of studies were extracted.

Methods of synthesis
A narrative synthesis (structured by setting of the intervention) was employed due to high levels of variability in clinical and methodological characteristics of the studies.

Results of the review
Nineteen studies (three RCTs) were included in the review. Risk of bias was high or moderate in all studies. Adherence to targeted recommendations was reported in only two studies (where it was 77% and 67%).
Hospital in-patient care (17 studies): Three before-after studies used HELP or a modified form of it. All showed substantial reductions in incidence of delirium. Risk of bias was moderate in one study and high in the other two. Two studies of proactive geriatric consultations with targeted recommendations (one RCT) found benefits that were not statistically significant when analyses were adjusted appropriately. Risk of bias was moderate and high. All except one of the other 12 studies reported statistically significant benefits of the multicomponent interventions assessed.

Palliative care (one study): One CCT with a high risk of bias found no statistically significant difference between intervention and control in a population of patients with terminal cancer.

Long-term care: One RCT found a statistically significant reduction in delirium onset in new patients in homes using Geriatric Risk Assessment MedGuide reports and automated medication monitoring plans.

Reporting of harms was low, and in many studies it was unclear whether this was because adverse events were not assessed or because they did not occur. One adequately powered study reported no differences between groups. One underpowered study reported only minor unexpected events that did not result in a statistically significant difference.

Themes in implementation methods that were consistent across studies were engagement of front-line staff in designing the intervention, involvement of a multidisciplinary team in the implementation and education and training of clinical staff to ensure that compliance was maintained.

Cost information
One study found that HELP resulted in a saving of US$2 million per year from prevention and a greater amount from resulting shorter hospital stays. A second study (which did not appear to be included in the main review) found that the HELP programme was cost-effective for patients at intermediate but not at high risk of delirium but this second study finding may result from a lack of statistical power.

Authors’ conclusions
Most multicomponent interventions were effective in preventing onset of delirium in at-risk patients in a hospital setting. There was insufficient evidence to determine the benefit of such programmes in other care settings.

CRD commentary
The review addressed a clear question supported by appropriate inclusion criteria. The search was thorough and no restrictions were imposed. The authors did not report whether they used methods designed to reduce reviewer bias and error at any stage of the review process but this review forms part of a series in which these methods were used for other sections. An appropriate method was used to assess study quality and the associated risk of bias. The decision to adopt a narrative synthesis appeared appropriate given the variability in the study details.

The authors’ conclusions reflect the evidence base in that, although the risk of bias was moderate to high, the direction of the available evidence was consistent. In the absence of high quality randomised studies of anti-delirium interventions, these conclusions are probably reliable.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice but stated that identification of the most effective set of components of anti-delirium interventions might encourage hospitals to adopt a more standardised approach to delirium prevention.

Research: The authors stated that comparative effectiveness studies with standardised protocols were needed, in particular to identify the most effective components in multicomponent interventions for the prevention of delirium.

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Bibliographic details
Other publications of related interest


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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.