Preventing delirium in older people

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Abstract

Delirium is a geriatric syndrome, characterized by acutely altered mental status with inattention, fluctuating course and global cognitive dysfunction, which is associated with a significant burden in terms of negative outcomes and costs of care. Delirium is frequently undetected despite its prevalence and incidence are relevant. In this brief report, we report the state of the art in terms of prevention for both medical and surgical patients. A non-pharmacological approach seems to be the more promising method to prevent delirium and improve quality of care for people at risk.

Delirium in geriatric patients

Delirium is a geriatric syndrome, characterized by acutely altered mental status with inattention, fluctuating course and global cognitive dysfunction.[1] It is one of the commonest disorders in hospitalized elderly people, which is expected to grow in the next decades due to progressive increase in the number of older people and of those who will develop dementia. Indeed, dementia is a strong risk factor for delirium onset.[2] The prevalence of delirium varies according to the settings in which it develops: its prevalence is estimated to be approximately 11-42% in acute hospital care, 14-18% in long-term care and post-acute rehabilitation,[3] 10-15% in the emergency department, 85% in palliative care settings.[2] Recently, an Italian multicenter point-prevalence study, assessing more than 1800 older patients admitted to general hospitals, found that delirium occurred in one in five individuals.[3]

Delirium may also complicate hospitalization: among patients who experience delirium in acute hospitals, nearly half presents delirium on admission, and the other half develops delirium during hospital stay (incident delirium).[2] In surgical wards, the prevalence is similar if not worse than in medical units. According to studies, in fact, a proportion ranging from 15 to 53% of patients admitted to surgical wards can develop postoperative delirium, whereas a proportion of 25% to 65% develop delirium among those with hip fracture.[4] Delirium incidence exceeds 75% in Intensive Care Unit (ICU).[2] It is also common in rehabilitation and post-acute care facilities.[3]

In geriatric medicine, delirium knowledge is crucial. Indeed, the presenting symptoms of a new disease are often atypical and delirium is one of the most common clinical expression of almost every acute disease. Therefore, delirium should be considered as a reliable marker of health status, a kind of *sixth vital sign*.[5]

Delirium is a multifactorial condition. In fact, its development strongly depends on the interaction between patient's predisposing factors (*i.e.*, sensory impairment, cognitive impairment, severity of acute illness and dehydration) and the exposure to precipitating factors (*i.e.*, physical constraints, malnutrition, recent prescription of >3 new drugs, bladder catheter and iatrogenic events).[2] This means that especially the frailest patients, such as those with functional impairment, dementia, multimorbidity and those on polypharmacy, are at highest risk of developing delirium.

Delirium carries out a significant burden in terms of patient's and caregiver's emotional distress[6] and is independently associated with poor clinical outcomes, including functional decline,[7] increased risk of accidental falls, morbidity, rehospitalization, prolonged length of hospital stay and institutionalization.[3] It is also associated with an increased odd to develop cognitive decline.[8] A study by Davis and colleagues has shown that the risk of developing long-term cognitive decline and dementia is significantly higher in older patients developing delirium than in those without.[8] Importantly, a further study found that the pathophysiological mechanisms that lead from delirium to cognitive decline are not the same than pathophysiological mechanisms underlying Alzheimer's disease, indirectly suggesting that delirium and dementia are two different clinical entities.[9]

In addition, delirium can affect mortality.[10] The effect of delirium on survival is not only related to its presence but also to its duration and severity. It has been shown that persistent delirium may increase the risk of one-year mortality regardless of other variables (age, gender, morbidity, functional status and cognitive status) which are known to affect survival.[11] Another study has shown that duration of delirium is an independent predictor of is an independent predictor of 6-month mortality in a population of patients who underwent hip fracture surgical repair.[4]

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Despite its prognostic implications, delirium is still undetected and often underestimated by physicians and healthcare providers. Detecting delirium can be particularly challenging in patients with dementia, sensory impairments and in patients with the hypokinetic subtype; furthermore, the fluctuating nature of delirium adds to high rate of underdiagnosis. The risk of underecognition is particularly elevated (up to 80% of cases) without using standardized diagnostic tools. A recent study by Bellelli *et al.*, using data from a national registry of acute Internal Medicine and Geriatric hospital wards in Italy, showed that the attending physicians were able to recognize delirium in less than 3% of all cases.[12] Recognition of delirium is essentially a clinical diagnosis that requires careful observation, so that cognitive screening and informant's interviews are key steps in the routine practice. From a practical viewpoint, thus, detection of delirium is the first step to improve its prevention.

Studies have shown that 3 of 10 cases of delirium are preventable.[9] Currently, although researchers are still evaluating pharmacologic strategies to prevent delirium, safe and efficacy of pharmacologic prevention has not yet been demonstrated.[1] This is logical from a clinical point of view, since delirium etiology is generally multifactorial and pharmacological interventions may obviously act only on a single risk or causative factor which is not necessarily the most important. Therefore, primary prevention with non-pharmacologic multicompo-

nent approaches is considered as the most effective strategy in hospital, non-ICU medical and surgical settings. However, multicomponent non-pharmacologic approaches are cost-effective for prevention of incident delirium but less effective in reducing delirium severity or duration.[1] In the past decade, several preventive interventions have been developed. Particularly, the Hospital Elder Life Program (HELP) has demonstrated that is possible a 40% reduction in the risk of delirium by performing a standardized detection of six targeted conditions, namely, cognitive decline, hearing and visual impairment, immobility, sleep deprivation and dehydration.[1] Recognition and active management of preventable risk factors may also be helpful for active prevention: i) patient's orientation can be improved by ensuring calendars, clocks, providing large illuminated telephone, glasses and hearing aids during hospital stay for patients with sensory impairments, reorienting the patient to person with names of care-team members, promoting regular visits from family and friends; ii) good sleep should be promoted by avoiding medical or nursing procedures during sleep, providing warm drink and ensuring relax with music and back massage and reducing noise at night; iii) infections should be actively searched and treated; iv) hypoxia and oxygen saturation should be regularly assessed; v) early mobilization should be encouraged by promoting daily exercises, early postoperative mobilization, providing keep walking aids and reducing use of bladder catheters and physical restraints; vi) hydration should be optimized by encouraging patients to get oral intake of fluids and appropriate nutritional support is recommended. Ensure proper denture is also crucial; vii) pain should be assessed and medications regularly reviewed. It is especially important to avoid sedative hypnotics, narcotics, anticholinergic drugs, corticosteroids.[1]

Among elderly patients surgically treated for femoral neck fractures, both nursing and medical interventions can result in a significant reduction of incidence and duration of postoperative delirium and may be associated with better rehabilitation outcomes.[4] Recent studies have also shown that tight control of glucose levels and blood transfusions can improve delirium prevention in the perioperative phase.[1]

Delirium can be prevented by a multidisciplinary team through educational programs and training to medical and nursing staff, to caregivers and to volunteers through formal presentations, group discussions or written guidelines.[1] Educational programs are comprehensive, simple and cost-effective instruments that have demonstrated to significantly reduce delirium incidence in both acute care settings and surgical wards.

In conclusion, delirium prevention is crucial in routine clinical practice and is the best way to improve quality of care of frail older people at risk of delirium. Currently, delirium primary prevention with multicomponent non-pharmacologic approaches seems to be the most effective strategy.

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