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Understanding delirium trajectory and its importance in care provision for older people

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COMMENTARY PAPER OF THE MONTH

Understanding delirium trajectory and its importance in care provision for older people

Delirium significantly increases morbidity and mortality in older people, especially those affected by other organic disorders, notably dementia (Martins & Fernandes 2012; Siddiqi, House & Holmes, 2006). Both delirium and dementia are characterized by cognitive decline through disintegration of brain functions, i.e. a "brain failure". Delirium has been described as an acute brain failure, in contrast to dementia being a chronic brain failure (Berrios, 1981). If we consider any other organ failure, for example that of kidneys, delirium superimposed on dementia resembles acute renal exacerbation superimposed on chronic renal failure. The timely recognition and treatment of acute renal failure can reverse its damaging effects, whereas chronic renal failure necessitates long-term and invasive or costly interventions (i.e. dialysis, kidney transplantation). Similarly, recognizing delirium and providing timely interventions can improve its symptoms to recover brain functions, delay cognitive decline, and alleviate distress and disability.

Cole and colleagues have investigated every facet of delirium for over two decades (Cole & Primeau, 1993; Cole *et al*, 2009). Their latest research report, entitled "Longitudinal patterns of delirium severity scores in long-term care settings" (Ciampi *et al*, 2016), has been selected as a paper of the month for International Psychogeriatrics. Its findings are comparable to those of their previous study published a decade ago (Sylvestre et al, 2006), which had similar objectives and methodology as the current one, but took place in acute care (AC) (St Mary's Hospital in Montreal, Canada) rather than in long-term care (LTC) settings (also in Canada).

Four patterns of delirium trajectory have been observed in both studies: *Improvement, Worsening, Fluctuating* and *Steady.* Noteworthy differences in patient distribution among these delirium patterns exist between the two studies. In the 2006 report, the *Improvement* pattern in AC patients was split into two sub-patterns: *Fast* and *Slow*; however, in LTC residents in 2016, the two different rates of improvement were not observed to justify differentiation into two sub-patterns. Compared to LTC residents, more AC patients demonstrated an overall *Improvement* (39% AC vs 22% LTC) and fewer AC patients had *Worsening* (6% AC vs 18% LTC) and *Fluctuating* patterns (16% AC vs 25% LTC). The recent findings suggest that the prognosis of delirium in LTC residents is worse than that in AC patients, in that, LTC residents are more likely to worsen over time and any improvement is likely to

be slower and more fluctuating.

Given that the differences in demographic characteristics between the two samples of 2006 and 2016 are not so pronounced as to explain the magnitude of their difference in delirium prognosis, we must consider clinical reasons for the observed differences between LTC and AC settings. First, LTC residents may be more vulnerable to delirium because of likely higher rates of chronic organic disorders, especially dementia. Indicatively, the rate of dementia in this study's LTC residents was 86% as opposed to 73% in the previous AC sample. Second, more medications for dementia and its sequelae, like behavioral disturbances, in LTC residents make delirium more likely to occur, or more fluctuating, in the context of adverse effects and toxicity of medication. Third, effective and timely interventions for delirium are less likely to be provided in LTC compared to AC settings.

Institutionalization to an LTC setting itself makes older people, especially those with dementia, vulnerable to delirium; in turn, delirium accelerates cognitive decline in existing dementia. Once institutionalized, life for older people can become isolated, limited and regulated by rules (Suh, 2015). New residents may struggle to adapt to the new environment when trying to use their vulnerable brain to cope. They become easily confused in this unfamiliar place. Once they fail to adapt and the integrity in their brain functions is severely compromised, symptoms of delirium or behavioral and psychological symptoms of dementia (BPSD) may become more prominent. These symptoms prompt medication use, often prolonged, to control them. Notwithstanding poorer baseline cognitive and physical function, a critical predictor of the differences in patterns of delirium trajectory between AC and LTC patients appears to be the care environment itself. This poses a two-fold question: *how treatment decisions for LTC residents are made and can residential settings learn from acute hospitals*?

Conflict of interest: none

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