



Commentary

Frailty and delirium: Unveiling the hidden vulnerability of older hospitalized patients

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Frailty and delirium are two of the most problematic issues in the management of older hospitalized patients. The term frailty, from the Latin “fragilis” meaning “easily broken”, refers to a condition characterized by decreased homeostatic reserve that leads to a high vulnerability even to low-power stressors with a dramatic worsening in patients’ health status [1].

Delirium is a condition characterized by fluctuating disturbances in arousal, disorientation and cognition disturbances, with sudden onset, that develops due to one or more often multiple underlying organic conditions. It is the consequence of the interaction between predisposing (e.g., cognitive impairment) and precipitating (e.g., infection, metabolic disturbances) factors, and it reflects the failure of the homeostatic brain mechanisms [2]. Delirium is the most common complication of hospital stay in older subjects and it can be found more than 20% of the hospitalized older adults [3].

Frailty and delirium share many commonalities. Both conditions are highly prevalent in older patients, they are both expression of higher vulnerability, are multifactorial entities and are associated with poor clinical outcomes such as functional decline, prolonged length of hospital stay, institutionalization, rehospitalization, higher mortality and health care costs [1,2].

Therefore, it would seem logical that frailty and delirium might often coexist. However, surprisingly few data exist to confirm this association. A recent systematic review and meta-analysis of Persico et al. [4] found only 20 studies that investigated the association between frailty and delirium, all of them having methodological limitations.

Although several clinical trials have been performed to prevent or treat delirium, none of them investigated the presence of frailty, despite frailty might have an important role in determining the result of the intervention implemented for delirium. Indeed, despite multi-component non pharmacological interventions have proven to be effective in preventing the onset of delirium, they did not improve other clinical outcomes, such as in-hospital mortality, 6-month mortality and institutionalization. It has therefore been hypothesized that an unrecognized state of frailty may favor both vulnerability to minor stressor events and adverse outcomes, acting as an unmeasured confounder [5].

In this issue of the EJIM, the paper of Bellelli et al. [6], using a

rigorous methodology to identify delirium and frailty, found that frailty is highly prevalent (47%) in a cohort of older patients admitted to an acute geriatric unit and its presence is strongly associated with delirium. This study is one of the first to clearly document this association and offers some interesting elements for reflection.

The high frailty prevalence in hospitalized older patients is consistent with the literature, although prevalence varies in different studies mainly depending on different diagnostic criteria used. Therefore, it is important to actively search for this condition also in the acute care setting, because of the need of a personalized approach is even higher in the management of frail older adults [7], given its strong association with in hospital complications and adverse outcomes [8].

Analogously, delirium showed a high prevalence (more than 40%) and coexisted in more than fifty percent of older patients with frailty, with two-thirds of patients presenting delirium at hospital admission. This strong association supports the emerging evidence about possible common pathophysiological pathways between frailty and delirium, involving primarily oxidative stress, alterations in inflammatory response, as well as modifications at vascular and endocrine level [9].

The observed association between delirium and frailty might have important clinical consequences for older patients. Not only the presence of frailty might induce a greater risk of developing delirium and negatively influence the response to delirium prevention interventions [5,9], but some studies have also shown that delirium may worsen a pre-existing state of frailty and prevent the functional recovery of hospitalized patients, eventually resulting in a greater disability and a higher risk of institutionalization [9].

Another noteworthy finding that emerged in this study is that frail older patients showed different performances on three common cognitive tests evaluating attention (to list months of the year backwards, to list the days of the week backwards and to count backwards from 20 to 1) compared to non-frail. In this respect it should be pointed out that the study of Bellelli et al. [6] included dementia in the computation of the “frailty index” and that dementia was almost three times more common in frail compared to non frail older inpatients. Therefore, dementia might account at least in part for the relationship between frailty and performance in tests of attention. Nevertheless, this result leads to take into consideration the existence of a possible connection

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between frailty and cognition.

There is a growing body of evidence that underlines the relevance of the cognitive dimension in frailty. The term “cognitive frailty” has been proposed to characterize the coexistence of both physical frailty and cognitive deficits in the absence of dementia or pre-existing brain disorders [10]. Although the relationship between frailty and cognitive impairment is still incompletely understood, there are data supporting this association. Frailty appears to be associated with an increased risk of developing mild cognitive impairment and dementia as well as of their progression [11]. Frailty might also be able to modulate the association between brain damage due to Alzheimer's disease and the clinical manifestations of Alzheimer's dementia. In the presence of a more severe frailty, dementia can occur even in older subjects with low burden of Alzheimer's neuropathology [12].

In conclusion, this study [6] adds to the existing literature suggesting an intimate link between frailty and delirium in older patients. Although further studies are needed to better clarify the cause/effect relationship between these two conditions, this association has important clinical implications. In older patients admitted to the hospital, the presence of frailty should be investigated, as this condition predicts adverse outcomes and requires a careful personalization of healthcare. Furthermore, when present it should lead to search for the presence of a concomitant delirium, given the high probability of their simultaneous presence. In the absence of delirium, evidence based non pharmacological measures should be intensively implemented to prevent it [13], in view of the high risk of developing it. On the other hand, delirium should also be systematically assessed in older inpatients, given the high rate of under-diagnosis [14] in the acute setting, and, when identified, it should always raise the suspicion of an underlying state of frailty.

Declaration of Competing Interest

The Authors declare no conflict of interest.

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