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The increasing challenge of epilepsy in the elderly: shortening hospital admission

O desafio crescente da epilepsia em idosos: encurtando a internação hospitalar

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Population aging is becoming a global phenomenon, although not necessarily a healthy one. Morbidity increases proportionally with age and many senior citizens have multimorbidity, often encompassing different health domains[1]. Epilepsy is a good example of a condition increasingly affecting this age group in terms of incidence and prevalence. Both have dramatically increased among the elderly, but incidence in particular now has the highest rates in people older than 75 years[1,2]. A major drive for this upsurge is likely to be the increase in aging-related epileptogenic conditions such as vascular changes and tau pathologies[1,3]. While formerly epilepsy was mainly in the realm of neuro-pediatrics, it is now becoming increasingly entrenched in the neuro-geriatric domain, and this will become more evident in the future.

An epilepsy diagnosis in the elderly may be challenging, as seizures are often unwitnessed, atypical, or have subtle presentations in the context of multimorbidity. So diagnosis is often delayed[4,5]. The same applies to clinical management, and, not surprisingly, epilepsy in senior citizens is associated with increased admission rates and length of hospital stay. It is also the herald of bad news since having seizures in old age is a predictor of a fatal outcome, with significant mortality in the next two years[6]. This ultimately adds to the burden of epilepsy to the individual, society and the healthcare systems.

Very topical, therefore, is the report from Bacellar et al.[7] in this issue of the journal, which addresses the clinical predictors of a long hospital admission in senior citizens with seizures. Their findings, based on a relatively large prospective observational study of people who had seizures either prior to or during admission, are of interest. People in this study had between four to seven comorbidities at admission and almost half had stays lasting 12 days or more. Multivariate analysis suggested that admission to an intensive care bed, the presence of a movement disorder, sepsis, urinary tract infection, and early seizure recurrence predicted length of stay. Conversely, hypothyroidism, seizures of unknown etiology, and being female were associated with shorter stay.

Reasons for prolonged admission of the elderly are either directly related to the seizures or may reflect complex comorbidities leading to complications. Seizure recurrence and status epilepticus are known indicators of high mortality and long stay[8,9]. They often reflect severe illness requiring intensive care admission such as status epilepticus, a known predictor of unfavorable outcomes[9]. For a number of reasons in this study, including the small sample size, once cases were etiologically stratified the effect of status epilepticus was, however, diluted.

Intensive care admissions, primarily for the management of comorbidities or an underlying condition, are common among older people with seizures, particularly if convulsive. They are associated with decreased survival and often longer hospital stay[10]. Respiratory infection, urinary tract infection, and sepsis are common complications in people admitted to intensive care, especially the elderly[11]. A previous study from Bacellar et al. found that psychiatric symptoms, sepsis, and cardiac arrhythmias were associated with an increased risk of recurrence and, thus, longer hospitalization[8]. In the current study, urinary tract infection and sepsis were associated with an increased risk of recurrence and longer stay, consistent with previous reports[11].

Seizure type and etiology may also affect length of stay. For people with acute symptomatic seizures treatment is often not recommended unless there are multiple episodes or status epilepticus[12]. Therefore, these people are less likely to have long admission compared to those

with established epilepsy, where often further investigation and treatment changes are required. People with convulsive seizures are more likely to experience prolonged hospitalization relative to those with other seizure types[13]. Some reports have also suggested that socioeconomic status may influence length of stay. People on low income are more likely to have more severe problems and comorbidities at admission and thus experience longer stay relative to people from higher socioeconomic strata[14,15].

There was a small number of people with movement disorders (<10%) in this study. The association between these disorders and prolonged admissions is well established, especially for Parkinson's disease[16]. Conversely, the positive effect of being female and suffering from hypothyroidism on length of stay is likely to be fortuitous. Indeed, there is no biological plausibility or hard evidence to suggest that these factors could influence length of stay among individuals with seizures.

It was not clear from the report whether likely confounders were adjusted for during the analysis, as these could potentially affect the outcome. Length of stay is likely to associate proportionally with disease severity, older age, number of comorbidities, and polypharmacy. Physical performance at admission, route of admission, in-hospital management, and socioeconomic status may affect length of stay. It would also be of interest to assess outcome variance between people whose seizures occurred prior to or during admission. Similarly, it would be valuable to look for differences in outcome between cases with an already established epilepsy diagnosis and those diagnosed during admission. Intuitively, it may be expected that those having seizures during hospitalization or requiring a diagnosis are more likely to stay longer, either for further investigation, therapeutic management, or both.

There is a dearth of data on most facets of epilepsy in senior citizens and these include knowledge about factors negatively affecting length of hospitalization. Epilepsy and seizures in the elderly will not disappear on their own and we will see further increases requiring as much knowledge as possible, as well as resources to cope with the deluge. Therefore, the contribution by Bacellar et al.[7] provides important indications in this respect. The prospective design and comprehensive approach used have increased its significance and set the scene for future studies. It is also valuable that some of the reported predictors are preventable. Thus, early recognition of these factors and proper intervention may potentially reduce admission length and its associated increased cost among older people with seizures.

Further well-designed studies to confirm and expand these findings are now warranted. As an aside, it would also be of interest to assess whether these predictors, some or all, are exclusively related to this specific group, and if so how frequent they are amongst older people compared to other age groups.

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