

Fracture Neck of Femur in the Super Elderly - Understanding Them Better



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Introduction

In a developed country like the United Kingdom (UK), there is a substantial change in the age structure of the population due to the increasing life expectancy. The section of the population that has shown to be the most affected increase is the super elderly (>85 years). As per UK's 2016 mid-year population estimates, super elderly forms 2.1% of the whole population and it is expected that, by mid-2039, more than 1 in 12 of the population is projected to be aged 80 or over [1].

Magnitude of the problem

Fracture neck of femur continues to be the second most leading cause for hospital admission in the older population [2]. It is the commonest serious injury for the older people [3]. Additionally, it is associated with a total cost to health and social services of over £1 billion per year, which is equivalent to approximately 1% of the whole NHS budget [3]. Surgery is indubitably the treatment of choice for fracture neck of femur even in the geriatric population [4,5]. On the whole, the seriousness of this injury is not completely attributable to the surgical aspect in the treatment of this injury. In this cohort of patients, the associated medical challenges generally dictate the outcome of the injury. This is due to the fact that, the super elderly is generally frail and have multiple medical comorbidities. To begin with, their pre-injury level is suboptimal and the hip fracture destabilises them further and thereby resulting in increased morbidity and mortality. The perioperative mortality rate ranges from 2.3 to 13.9% [6]. However, this risk does not end with discharge from the hospital. Nearly a third of these patients die within a year of the injury, which is almost double the rate when compared to the younger cohort (65-84 years) [7]. Among those who survive, 60% fail to remain independent in all their activities of daily living [8]. Hence understanding the allied medical, psychological and functional aspects of this distinct subgroup of super elderly patients is required to improve their outcomes after a hip fracture.

Pre-existing co-morbidities

The most common comorbidities in the elderly patients include hypertension (50-60%), hearing loss (35%), dementia (30%), repeated falls (25%), cancer (20%), vision loss (20%), chronic obstructive pulmonary disease, diabetes (10-20%), cardiac failure (15%) and coronary artery disease (15%) [9,10]. These comorbidities primarily influence the outcome after hip fracture and hence need to be recognised at the time of admission. Early recognition would help in stabilising these co-existing conditions. However, this does not imply that medical interventions be instituted that may potentially delay the surgery beyond the 48-hour cut off [11]. Delayed surgery has been shown to be linked with worse outcomes. It is of utmost importance to identify and promptly treat correctable comorbidities like anaemia, anticoagulation, volume depletion, electrolyte imbalance, uncontrolled diabetes, uncontrolled heart failure, correctable cardiac arrhythmia or ischaemia, acute chest infection and exacerbation of chronic chest conditions so that these patients can be operated within the golden period of 48 hours.

Post-operative morbidities

In addition to the above mentioned pre-existing medical conditions, hip fractures can precipitate further medical issues which complicate the recovery of these patients. These include pain (both from the injury and the surgery), delirium, infections, decubitus ulcers, deep vein thrombosis, pulmonary embolism, restricted mobility and depression. Prevention and prompt recognition of these complications go a long way in improving the outcome of hip fractures. Special mention regarding delirium is warranted as it is a common problem which is usually under-recognised and sub optimally treated in this subset of patients with a fracture neck of femur. Patients who have had femoral neck fractures can experience delirium three times more than patients undergoing non-orthopaedic surgery [12]. There is

increased mortality and morbidity associated with delirium [13]. Various risk factors have been identified for delirium and the cause is usually multifactorial [14]. These include advanced age, dementia, polypharmacy, hypoxia, infection, pain, fluid and electrolyte disturbance, hypotension, malnutrition, unfamiliar environment, existing visual and auditory impairment and sleep deprivation. Robertson and Robertson in their study have shown that early intervention can reduce the prevalence of delirium by 50% [15]. It is pertinent to note that most of these factors do not operate in isolation; rather they are so closely inter-related that one factor can lead to the other like a chain reaction. Hence, targeting these risk factors through a multidisciplinary approach comprising the geriatric physician, nursing care, pain team, physiotherapist, dietician, pharmacist and relatives of the patients can significantly reduce the incidence of delirium in the super elderly.

Prevention

Successfully surviving the hip fracture and returning to the previous level of activity may seem to be the target at focus. However, studies have shown that, these patients are at increased risk of a second hip fracture. The risk has been calculated to be six-fold higher [16]. The two main elements of this increased risk are low bone mineral density and falls [17]. There is ample evidence for the pharmacological treatment of low bone mineral density [18,19] and it is being increasingly practiced. Falls on the other hand need a holistic approach for its prevention. Falls are the fundamental mechanism for nearly 95% of fracture neck of femur. After sustaining a fall, the subsequent probability of suffering another fall is three times more [18]. These patients should undergo a multifactorial assessment for the risk factors contributing to a fall and appropriate interventions in the form of strength and balance training, home hazard assessment and intervention. Vision assessment, medication review with modification/withdrawal should be implemented [20].

Conclusion

With the projected increase in the number of super elderly and in turn the increased burden of treatment of hip fractures, it is vital to understand the complexity and multifactorial nature of the situation of this subsection of patients and henceforth utilise a multidisciplinary approach for improving the outcomes after neck of femur fractures.

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