

Geriatric orthopedic co-management of older adults with hip fracture: an emerging standard

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Abstract: Hip fracture, a common complication of fall injuries in older adults, often results in high rate of mortality, increased debility, functional loss, and worse quality of life. The value of geriatric teams and model of care for the hip fracture patients have been examined in a number of studies, and even though most studies have demonstrated potential impact in improving outcomes for the hip fracture patients, they are often observational or quasi-experimental designs that are prone to bias. In this editorial, we review *the Lancet* article by Prestmo and colleagues, a randomized controlled trial that demonstrated improved outcomes for hip fracture patients managed in a geriatric unit.

Keywords: Geriatric; hip fracture; ortho-geriatric model of care

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Hip fracture is a potentially devastating illness for older adults which often results in high rate of mortality (1,2), substantial debility, functional loss (2-4), and poorer quality of life (5). Many studies have examined care factors associated with better outcomes for hip fracture, including anesthesia and orthopedic care for the surgical patient such as choice of anesthesia, timing of operation, but also peri-operative care elements that are perhaps best managed by medicine or geriatric specialties and interdisciplinary team such as pain control, early mobility, and delirium prevention. The value of geriatric teams and model of care for the hip fracture patients have been examined in a number of studies, and even though most studies have demonstrated potential impact in improving outcomes for the hip fracture patients, they are often observational or quasi-experimental designs that are prone to bias. The recent *Lancet* article by Prestmo and colleagues (6) provided a valuable addition to the evidence by studying the effect of hip fracture care in a geriatric unit in a randomized controlled trial.

In this single-centered randomized controlled trial of home-dwelling older adults with hip fracture (6), the

authors demonstrated that those who were treated in a geriatric unit with comprehensive geriatric care had better physical performance at 4 months after hip fracture, better functional status and quality of life at 4 and 12 months when compared to those who were managed by orthopedic service for routine orthopedic care during the acute hospitalization period. The authors also found that those managed with geriatric care also had better cognitive status at 12 months after hip fracture and less fear of falling throughout the study period. The authors noted that although the mean length of hospital stay for the intervention group was longer, a difference of 1.7 days, a greater proportion of the older adults in the intervention group was discharged directly home (intervention 25%, control 11%), which perhaps suggests that the complexity of care coordination and discharge planning were possibly some of the reasons for the differences in hospital length of stay and discharge location. Overall, the study provides further evidence supporting the adoption of comprehensive geriatric care for the hip fracture patients which may lead to improved patient outcomes up to 12 months after hip fracture.

One important question that remains is what the

elements are in this model that made it effective in improving patient outcomes. Prestmo and colleagues (6) described the intervention as comprehensive geriatric care which uses various assessment tools, incorporates an interdisciplinary team with the focus on management of common geriatric syndromes, fall and delirium prevention, early mobilization, and early discharge planning. Previous studies on ortho-geriatric models of care for hip fracture suggest that there is substantial variability in how geriatric care is integrated in the management in hip fracture patients. Although a number of studies demonstrated the potential benefits of ortho-geriatric model of care in improving length of stay and readmission rate (7,8), reducing complication rate (8,9), mortality (8,9), and cost of care (10,11), a systematic review of these studies (12) commented on the substantial heterogeneity in both the implementation and components of the models of care and in their effects. In fact, a prior randomized controlled trial by Naglie and colleagues (13) that examined the effect of comprehensive geriatric care on hip fracture patients and employed similar components as described in the study by Prestmo *et al.* (6) failed to show any significant differences in outcomes between those managed under geriatric care and those in usual care. The disparate findings may be the result of differences in the care components that are actually delivered in these models.

There are many elements of care that are important for management of hip fracture patients, and the challenges are often compounded by the multiple comorbid illnesses of the typical elderly hip fracture patient and the need to involve multiple disciplines in their care. Care elements that may have impact on patient outcomes are multiple, including pre-operative optimization and correction of serious medical abnormalities, early surgical intervention if possible, selection of anesthesia during operation and other standards for peri-operative care such as antibiotics, and prevention of venous thromboembolism using anticoagulants. Other elements that may have a significant impact on outcome include pain control, early mobilization, and tolerance of physical therapy. Another aspect of care that is important is delirium prevention which often involves a multi-component intervention that reduces the modifiable risks of delirium by eliminating catheters early, avoiding medications that may increase the risk of delirium, among other components (14,15). Other important disciplines include physicians who manage and optimize chronic medical problems during the peri-operative period, physical therapy and occupational therapy which have critical roles

in assessing patients' functional status and providing therapy for rehabilitation, social workers or care managers who help to identify the psychosocial needs of the patients as well as the availability of the community resources. It is likely that Prestmo *et al.* (6) included most or all of these care elements in their intervention on the geriatric unit; however, careful tracking of certain processes of care, such as timing to first physical therapy, pain control, and incidence and duration of delirium, may help to elucidate how comprehensive geriatric care yields its benefits for hip fracture patients. A description of a standardized protocol to each area of intervention would be very helpful for future dissemination and implementation of this particular type of ortho-geriatric model of care.

Overall, the study by Prestmo and colleagues (6) contributes to the current evidence that supports the use of comprehensive geriatric care in a geriatric unit for hip fracture patients. It is clear that multiple care components are needed to achieve the outcomes seen in this study, and the study likely employed many of them in the geriatric unit. Future studies may benefit from detailed protocols that outline the different aspects of geriatric care and from the inclusion of process outcomes. Nonetheless, this study lays the groundwork for further multicenter studies that may tackle the issues of heterogeneity and generalizability, and ultimately lead to widespread transformation of care for hip fracture patients.

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Footnote

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