

Addressing Senior Immobility And Functional Decline During Hospitalization In Ontario

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ABSTRACT

There is a need to make Ontario hospitals more senior friendly, since hospitalization can put seniors at risk for unnecessary long-term functional decline. To achieve this end, the Council of Academic Hospitals in Ontario (CAHO) has recently introduced the Mobilization of Vulnerable Elders in Ontario project (MOVE ON), with the goal of improving mobility in hospitalized seniors. This article explains the evidence supporting early mobilization of seniors, while outlining the MOVE ON project and exploring the potential barriers to early mobility programs.

RÉSUMÉ

INTRODUCTION

A disproportionate amount of healthcare services are devoted to the elderly population. Although seniors represent 14.6% of the Ontario population, they account for nearly 50% of hospital costs and 56% of hospital days in the province [1,2]. To a certain degree, the high usage of healthcare services among seniors reflects the deleterious impact of hospitalization on senior health [3]. For instance, over 33% of seniors experience functional decline from hospital admission to discharge, defined as loss of independence with Activities of Daily Living (ADLs) and Instrumental Activities of Daily Living (IADLs) [1, 4, 5]. Unfortunately, functional decline is frequently permanent, putting seniors at risk for re-hospitalization and admission into long-term care facilities, resulting in greater hospital usage and healthcare costs [1].

With this healthcare burden in mind, it is important to understand the factors associated with functional decline during hospitalization, since such an understanding represents the angle for change and improvement. One risk factor of particular significance is patient immobility [1]. In a study by Brown et al. (2009), seniors can spend up to 83.3% of hospital time in bed, with only 3.8% of time devoted to standing or walking [6]. Although bed rest is needed during recovery, these low levels of

mobility can precipitate changes in functional independence through changes to the musculoskeletal and cardiorespiratory systems. Healthy seniors exposed to 10 days of continuous bed rest experienced a decline in aerobic capacity (VO₂ max) that was equivalent to what would be expected from healthy aging over a period of a decade [5]. These same patients lost over 10% of muscle strength, even while following a meal plan that complied with weight-based macronutrient requirements. The decrease in strength and aerobic capacity is likely more profound in the setting of critical illness, since disease can contribute directly to a state of catabolism [5, 7]. Furthermore, organ reserve is decreased with age, such that declines in cardiorespiratory or musculoskeletal function are more likely to be clinically significant at an older age [1]. This can result in increased rates of nursing home placement [1, 3, 5, 6, 8] and longer hospital stays [3, 8]. Immobility is also associated with delirium, mood changes, constipation, orthostatic hypotension, and an increased risk for falls, atelectasis, aspiration pneumonia and deep venous thrombosis [7, 9]. It is significant to note that Brown et al. (2004) found that low levels of mobility were associated with high frequency of adverse outcomes even when controlling for illness severity, co-morbidities and pre-admission ADL levels [8]. This adds to the credence that mobility is an entity in and of itself that contributes directly to the discharged functional state of patients.

Keywords: Functional decline; Senior mobility; MOVE ON Project

ONTARIO SOLUTION: THE MOVE ON PROJECT

Given the association between immobility and adverse health outcomes, the Council of Academic Hospitals of Ontario (CAHO) has recently prioritized the issue of immobility in hospital settings [10]. In 2010, CAHO introduced the Adopting Research to Improve Care (ARTIC) program, with the goal of translating research evidence into actual practice [10]. One of the projects implemented by the ARTIC program concerns the early mobilization of seniors in acute care settings, known as MOVE ON (Mobilization of Vulnerable Elders in Ontario) [10, 11]. Although the project is currently ongoing, the primary outcome of MOVE ON is to improve the mobilization of senior patients in Ontario hospitals, with the secondary outcome of reducing hospitalization length of stay, decreasing long term care placement after acute care discharge, and improving functional status at discharge [1]. The project represents the practical application of previous research in favor of early mobilization programs. Prior studies have shown that early mobilization in acutely ill patients is associated with decreased hospital costs [12], less ICU days of delirium [13], greater functional scores at discharge [4], reduced nursing home placements at discharge [4], and improved subjective feelings of well-being [9]. As well, MOVE ON was initiated with the knowledge that early mobilization can be safely implemented even in the sickest of senior populations. A study by Bailey et al. (2007) on early mobilization in respiratory failure patients found that less than 1% of mobility activities were associated with adverse cardiorespiratory events [14]. In another study on mechanically ventilated patients, physical therapy was discontinued in 4% of cases because of low oxygen saturations and patient ventilator asynchrony [13]. In both these studies, the rate of adverse events was considered acceptable given the minor impact of these events in comparison to the positive outcomes experienced in other patients. The MOVE ON project hopes to expand on this research to demonstrate that early mobilization can be carried out safely and successfully on a larger scale.

BARRIERS TO MOBILITY AND AREAS FOR IMPROVEMENT

Although the direct outcomes of the MOVE ON project have not been published and the study is still ongoing, program coordinators have identified numerous barriers to early mobilization. For example, The Ottawa Hospital, as part of its project involvement, created focus groups composed of researchers, educators and front-line staff to determine barriers to mobilization [9]. These barriers included environmental challenges, as well as staff, patient and family perceived obstacles. According to the focus groups, patients can be restricted by a lack of personal motivation, a lack of knowledge regarding the benefits of early mobilization, and the presence of incapacitating symptoms such as weakness, fatigue and pain [9]. As well, healthcare workers responded that staff shortages and time constraints make it difficult to provide the assistance that is needed to deliver mobility

activities, especially when hospitals are run on 8 am to 4 pm, Monday to Friday timetables [9]. Responses also indicated that hospital environments are not designed to encourage ambulation, since hospitals may lack assistive devices, exercise equipment, safety measures (railings and chairs in the hallway) and destinations of interest that are conducive to early ambulation [9]. These same barriers have been identified in other areas including Alabama by Brown et al. (2007) [15]. Additional barriers identified at MOVE ON sites and elsewhere include the feasibility and safety of early ambulation [9, 15, 16, 17, 18], especially in patient populations that use invasive devices (e.g. catheters) or are on continuous sedation [9, 19, 20].

To overcome these barriers, it is important to create a hospital culture that supports mobility. For example, MOVE ON coordinators have made it standard of care to ensure that mobility status is documented in every patient room, that mobility is addressed within 24 hours of admission and that mobility is a regular topic during team handover and patient rounds [9]. As well, MOVE ON has focused on ensuring that healthcare providers, family members and patients are educated about the benefits of early mobilization [9].

The participation of family members is an important avenue for change: the healthcare team at the SICU at the University of Michigan Health System saw improved compliance with mobility protocols when family members were educated about mobility, since it allowed them to act as educators, facilitators and coaches for their loved ones [21]. MOVE ON sites have also tried to create a physical environment more amenable to early mobilization. These efforts have included the provision of railings and chairs in hallways to promote safe mobility, as well as offering destinations of interest (e.g. social rooms) to encourage ambulation [9].

The importance of safety has figured prominently in the MOVE ON project. In order to promote both patient safety and full patient involvement, a tiered mobility protocol was developed by MOVE ON coordinators to ensure that mobility activities are introduced in a manner befitting patients' medical conditions [2]. Part of this thought process recognizes that mobility is more than just walking; even the simple act of sitting in a bed can be beneficial, since maneuvering to an upright position can improve ventilation and lung perfusion [14]. A tiered protocol may include such activities as turning or sitting in bed, standing, transferring from bed to chair, active and passive range of motion (ROM) exercises in bed or on a chair, and walking [2]. The MOVE ON protocol is based on determining the patient's best activity level using the ABC mnemonic: are they able to walk (Ambulate), can they transfer from bed to other positions like standing or sitting (Bed transfer) or can they not transfer positions (Cannot) [2]. Patients at level A can be encouraged to walk at least three times per day, patients at level B can be encour-

aged to transfer from bed to chair with active range of motion exercises at least three times per day, while patients at level C can be encouraged to have meals upright with active and passive ROM at least three times per day [2]. Although not explicitly part of the MOVE ON mandate, these protocols can include options such as neuromuscular electrical stimulation (NMES) [20], which may be used to elicit muscle contractions and mitigate muscle weakness in situations where traditional mobility activities (e.g. walking) may be difficult or unsafe (e.g. heavy sedation). The use of tiered mobility protocols has given MOVE ON healthcare workers the ability to develop personalized activity programs for patients of varying medical complexity.

CONCLUSION

Since 2010, with the introduction of the ARTIC program, Ontario has taken a great leap forward in ensuring research translation in the field of medicine. Previous research has shown a significant association between senior immobility and adverse health outcomes, including longer hospital stays and functional decline at discharge [1, 3, 5, 6, 8]. The MOVE ON project has been introduced across Ontario hospitals with the hope of successfully addressing the relationship between hospitalization, immobility and the functional decline of seniors. Although the outcomes have not yet been characterized, the project efforts have identified several barriers to early mobilization, including patient-related (e.g. incapacitating symptoms, lack of education), staff-specific (e.g. time restraints, safety concerns) and environment-based (e.g. lack of assistive devices) obstacles [9]. These barriers have shaped the early interventions of the MOVE ON program. A tiered mobility protocol has been adopted to ensure feasibility and patient safety [2]. The program has worked on establishing a culture of early mobilization by ensuring that mobility status is documented in patient rooms and is communicated during interdisciplinary rounds [9]. As well, the program has focused on educating all stakeholders about the importance of early mobility [9]. Hopefully, these interventions will prove fruitful in the long-term and ensure that Ontario hospitals support proper recovery and care.

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