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EDITORIAL

NON-PHARMACOLOGICAL INTERVENTIONS IN THE NURSING HOME SETTING: DOES IT MAKE ANY SENSE TO STRUGGLE AGAINST SEDENTARY BEHAVIOR AMONG RESIDENTS?

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Introduction

Experts in the field of nursing home (NH) research and clinical practice agree that non-pharmacological interventions must be a priority in institutional settings. As recommended by a panel of experts, and validated by the International Association of Gerontology and Geriatrics and the World Health Organization, it is important that "'meaningful activities' be offered to residents to provide physical and mental exercise and opportunities to participate within the nursing home and in community life, enhancing personal autonomy, social relationships (including intergenerational relationships), and social support" (1). Effective non-pharmacological interventions have the advantages of being low cost and low risk for older adults. This is a growing research field, with most studies examining the benefits of non-pharmacological interventions for residents with dementia (2-4), especially due to concerns raised by the use of potentially harmful drugs often used to treat/manage neuropsychiatric symptoms (5-8), or studying the effects of interventions on specific and widespread conditions, such as chronic pain (9), overall functional ability and mobility disability (10). One of the most widespread conditions among NH residents is related to a reduced functional ability (11-14), with more than 80% of residents having some degree of disability in executing activities of daily living (ADL) (12, 13). Mobility disability, as measured by the ability to walk a few meters, is a major issue in NHs: according with data from IQUARE (study performed in 175 French NHs, for a total of 6275 residents) (12), mobility disability reaches almost 70% of residents, with almost 40% needing human help to walk (12).

Regarding non-pharmacological interventions to improve functional ability and reduce mobility disability in older adults, physical exercise is a well-established approach (15), including in people with dementia (16) and institutionalized older adults (10). Nevertheless, less attention has been paid to the adverse effects of sedentary time, a component of a physically active behavior, on function and mobility in the institutionalized elderly. Sedentary activities are defined as activities performed during waking hours that do not increase energy expenditure above 1.5 metabolic equivalents (17), which according with the recently updated Compendium of physical activities (18, 19) can be illustrated by activities such as sitting and/or lying down for watching television, listening to music, reading or talking on the phone. However, to the best of our knowledge no study has examined the effects of sedentary behaviors in predicting future physical function and mobility, even though sedentary behaviors have been found to be associated with the risk of type 2 diabetes (20), cardiovascular disease (20) and mortality (20, 21) in the general population. This research gap could explain why the time spent in sedentary activities has almost never been investigated in the NH setting. The Table below shows the results of a quick search in PubMed that retrieved studies investigating both sedentary and physical activities that have potentially been developed in NHs: whereas more than six

Table

Results of PubMed search performed on April 22nd, 2014, about studies potentially developed in the nursing home setting on both sedentary and physical activities

	Sedentary activities and NH		Physical activity and NH	
Search	**Query**	**Items found**	**Query**	**Items found**
#1	(nursing home*) OR long-term care facilit*	38759	(nursing home*) OR long-term care facilit*	38759
#2	((sedentary behavio*) OR sedentary time) OR sitting time	9779	(physical activit*) OR exercis*	297926
#3	#1 AND #2	28	#1 AND #2	665

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hundred titles have been retrieved for physical activity, only less than thirty have been for sedentary activities.

Moreover, from the 28 articles retrieved for the sedentary activities search, only two (22, 23) were performed in NHs and really assessed and reported a measure of sedentary activity. In these studies, Chin A Paw et al. (22) found that residents spent more than 8 hours per day sitting (which represented around 77% of the total time evaluated by those researchers), and Ikezoe et al. (23) showed that residents spent 74.3% of their time in sitting or lying activities. Therefore, there is preliminary evidence showing that NH residents who are still able to stand up and ambulate independently (with or without walking-aids) spent around three-quarters of their waking time in sedentary activities.

Is sedentary behavior a useful outcome to be targeted in the NH setting?

Although there is no definitive, evidence-based, response to this question (since no study has examined the effects of reducing the time spent in sedentary activities on health outcomes (particularly functional ability and mobility disability) in the NH population), there is limited evidence indicating that breaking sedentary time could improve function in NH residents (24). Indeed, Slaughter and Estabrooks (24) recently found, in a preliminary study developed in two NHs (n=26), that residents' performance in sit-to-stand activity improved functional fitness as measured by the 30-seconds chair rise test. The intervention introduced by these authors consisted in asking NH staff to encourage residents to stand up and sit down as many times as possible on two occasions each day and evening shift; therefore, this intervention is better defined as an intervention to break sedentary time more than a structured exercise program. Although one could argue about the safety of this activity, since standing slowly and sitting (alongside walking forward) are the main causes of falls in long-term care facilities (25), Slaughter and Estabrooks (24) found that no falls occurred during the execution of the sit-to-stand activity.

Perspectives

Breaking the time NH residents who are still able to stand up and ambulate a few meters may potentially slow down the progression of mobility disability. Breaking sedentary time could be used as an intervention to potentiate the positive effects of an exercise program; this intervention could also be focused in residents who do not wish to participate in structured exercise classes. This is a promising research field, since breaking sedentary time is less physically demanding than participating in exercise classes; therefore, although it is probably less effective than exercise to maintain physical function and mobility, it has the advantage to be easier to adopt and maybe adhere in a long-term basis to the vulnerable population of NH residents. Further research is, therefore, needed to establish the effectiveness and safety of interventions aiming to break sedentary time; integrating such an intervention in the routine care in NHs would facilitate its implementation in a long-term basis.

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