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COMMENTARY

Opportunities for falls prevention in older adults with mild cognitive impairment

Commentary on "Cognitive and physical declines and falls in older people with and without mild cognitive impairment: a 7-year longitudinal study" by Chantanachai *et al.*

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Mild cognitive impairment (MCI) is considered a transitional state between normal cognitive changes associated with aging and dementia (Chen *et al.*, 2021). MCI is defined by subjective cognitive complaints and measurable cognitive deficits which are not normal for the age of the person, preserved normal activities of daily living, and the absence of dementia (Winblad *et al.*, 2004). The prevalence of MCI across geographic regions has been estimated at 5.9% and increases with age but is unaffected by sex (Sachdev *et al.*, 2015). The trajectory of cognitive function over time for people diagnosed with MCI can vary with some people progressing to dementia, some reverting to normal cognition, and a third group that do not show progression (Ganguli *et al.*, 2011; Petersen *et al.*, 2009; Sachdev *et al.*, 2013).

Cognitive impairment is associated with an increased risk of falls in older adults (Muir *et al.*, 2012). The occurrence of falls among people with MCI is increased compared to the cognitively healthy (Montero-Odasso and Speechley, 2018) and it has been estimated at least 40% will fall once each year (Chantanachai *et al.*, 2022). The recent world guidelines for falls prevention recommend older adults without a diagnosis of cognitive impairment should be screened for cognitive disorders including executive function (Montero-odasso *et al.*, 2022). The assessment of cognitive status has also been identified as an important factor for promoting healthy aging in older adults (Scelzo, 2021). Additionally, the screening for cognitive function allows the opportunity to monitor people at high risk for progression to dementia and associated adverse outcomes such as falls (Ramakers and Verhey, 2022). Physical function changes have been found among people with MCI that increase the risk of falls, specifically balance impairment, reduced mobility, and slow gait speed (Chantanachai *et al.*, 2021). Among a sample comprised solely of people with a diagnosis of MCI, cognitive function was not associated with an increased risk of falling (Chantanachai *et al.*, 2022). As cognitive function can change over time for MCI, the relationship between the different trajectories of cognitive function in MCI to the incidence of falls has not been disentangled in the literature up to now.

The paper by Chantanachai *et al.* (2023) has evaluated changes in cognitive and physical function and falls in a sample of older people with and without MCI. Cognitive function was evaluated with measures of global cognitive function, processing speed, and executive function. Physical function testing included the Timed Up and Go test and sensorimotor function using the Physiological Profile Assessment. The study followed a sample of 481 older adults for up to 6 years for changes in cognition and physical function and then followed them for a further 1 year to evaluate the relationship between those changes and the occurrence of falls. Importantly, the sample was divided into three groups for analysis: those with MCI at baseline and MCI or dementia at all follow-up assessment, people who fluctuated between normal and MCI over the follow-up, and people who were cognitively normal at baseline and throughout the duration of the study. There are three important findings from this study that address existing gaps in our understanding of falls in people with MCI.

The first finding was consistent with expectations, there was a difference in cognitive performance (lower cognitive performance in the MCI group for global cognitive function, processing speed, executive

function) between the MCI and the cognitively normal group, and between the MCI and the cognitively fluctuating group. Additionally, the rate of decline of cognition over the follow-up duration was greater in the MCI group. The MCI group also had worse physical function at baseline compared to the cognitively normal group, but the rate of decline in physical function was similar across the three groups. Lastly, a greater decline in physical function in mobility was only associated with falls in the analysis of the whole sample. Greater cognitive decline in global cognitive function and sensorimotor function was associated with falls only in the cognitively normal group.

The study has several important findings for application into clinical practice. The most important clinical takeaway from this study is that all older adults (the cognitively healthy, and people with MCI and fluctuating cognitive status) should be offered fall prevention interventions that target improving and maintaining mobility. The study also clearly demonstrates the decrease in physical function in people with MCI compared to the cognitively healthy that presents early in the time course of the condition. While cognitive changes feature prominently in the diagnosis and awareness of MCI, the demonstration of the presence of changes in physical function highlights there is a role for rehabilitation intervention to maintain or regain function. Therefore, a comprehensive assessment of function is important to identify the presence and extent of deficits that can then inform the creation of an individualized rehabilitation program that includes exercise and education.

Additionally, the study highlights there is more rapid decline in cognition among people with MCI. Rehabilitation professionals working with people with MCI need to be aware of the trajectory of changes within both domains to provide appropriate interventions. Therefore, interventions that target both physical and cognitive training have been shown to result in improvements in both domains for people with cognitive impairment (Gavelin *et al.*, 2021). This study has also provided important information to help guide short- and long-term goal planning for rehabilitation. Consistent with the recent global falls prevention guidelines (Montero-odasso *et al.*, 2022), it assists healthcare professional to provide appropriate education to people with MCI and their care providers related to expectations in function and falls prevention that can improve and maintain independent function, reduce care needs, and improve quality of life.

Conflict of interest

None.

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