Pneumoconiosis Compensation Fund Board

<< Influence of cognitive function and skeletal muscle mass and strength on disability among people with silicosis>>

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Investigators

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Abstract

Background: Cognitive decline and loss of skeletal muscle mass/function are common in individuals with impaired lung function, and these comorbidities can exacerbate disability. Silicosis patients, who already have compromised lung function, are particularly vulnerable to experiencing these declines, but our knowledge in this area is limited.

Objectives: This study aims: (i) to determine the prevalence of cognitive impairment and skeletal muscle loss among patients with silicosis and compare these rates with those of community-dwelling middle-aged and older adults without silicosis; (ii) to compare the risk of cognitive impairment and skeletal muscle loss between patients with silicosis and community-dwelling middle-aged and older adults without silicosis; (iii) to identify factors associated with cognitive impairment and skeletal muscle loss among patients with silicosis; and (iv) to examine the associations between cognitive impairment, skeletal muscle loss, and disability among patients with silicosis.

Methods: This cross-sectional study recruited Hong Kong residents with Chinese ethnicity aged 50 and above, either diagnosed with silicosis by the Pneumoconiosis Medical Board and currently receiving compensation from the Pneumoconiosis Compensation Fund Board, or matched controls of middle-aged and older adults residing in the community. A demographic data sheet was used to collect the socio-demographic and clinical characteristics of the participants. The cognitive function, disability, risk of sarcopenia, social support and coping strategies adopted by participants were collected by validated instruments. In addition, six-minute walk test, handgrip, bioelectrical impedance analysis and blood tests were also conducted to examine the skeletal muscle function.

Results: A total of 534 participants were recruited in the study. The findings revealed that individuals with silicosis were at a significantly higher risk for cognitive impairment (7 times) and possible sarcopenia (3 times) compared to a healthy cohort. Among individuals with silicosis, age, muscle strength and coping strategies (planning, venting and religion) were the significant independent factors associated with cognitive impairment, whereas functional capacity as measured by 6-minute walk test, was the sole significant independent factor associated with possible sarcopenia. In addition, cognitive function and skeletal muscle loss were found to be significant contributors to disability in individuals with silicosis, accounting for 34% of variance explained.

Conclusion: Individuals with silicosis are at heightened risk for cognitive impairment and skeletal

muscle loss, ultimately contributing to disability. Early detection of risk factors and the implementation of interventions targeting sarcopenia and cognitive impairment are vital to improve functional outcomes and mitigate disability in this population.