Mild Cognitive Impairment and Dementia: The Importance of Modifiable Risk Factors
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Potential Work-Related Causes of Dementia

Next to a variety of modifiable, particularly cardiovascular risk factors (1), mild cognitive impairment or dementia may also be caused by occupational exposures.

While the influence of various occupational agents (such as solvents or pesticides) is only suggested in the literature, increasing evidence exists that head injury is associated with a higher incidence of risk or an accelerated onset of dementia. Although the underlying mechanisms are still unclear, the association may be explained by contusions of frontotemporal brain areas due to hitting the cranial bone. The frequently observed interaction with an elevated risk for carriers of the Apo e4 allele suggests an additional genetic influence (2).

An increased risk of cognitive impairment after head injury was reported in a recent U.S. cohort with five-year concurrent follow-up (3). Furthermore, mentally challenging occupations contribute to the cognitive reserve, which is a protective factor in the development of dementia (4).

As a result of demographic change, cognitive impairment and dementia will steadily increase. Extending the working lifetime in Germany will increasingly move the incidence of these diseases into the active professional life. Next to traditional health and safety measures, such as avoidance of exposures to hazardous substances or protection against work injuries, occupational medicine has to face new challenges in the context of primary prevention. Determining which measures can be taken at the occupational level to delay the onset of dementia in workers with signs of mild cognitive impairment will be of critical importance.

Cognitive Conscious Stimuli With Movement

Etgen et al. explicitly point out that mild cognitive impairment and dementia can be modified by protectively by physical activity (1). This again reinforces old, timeless sayings such as that from the German physician Friedrich Hoffmann (1660–1742): “Physical exercise surpasses all drugs and is the universal medicine.” Neurobiological adaptations to motion include increased cerebral blood flow, new formation of spine, nerve cells, and capillaries, and synopsis hypertrophy, as well as increased gene expression of neurotrophic factors, such as brain-derived neurotrophic factor (BDNF), insulin-like growth factor 1 (IGF-1), and nerve growth factor (NGF); these responses play key roles in structural and functional brain changes (2). It appears that people with mild to moderate dementia can benefit from a progressive strength, balance, and functional exercise training several times a week, especially if this is combined with an individual dual-task training (3). Finally, I would like to point out that there is a negative association between the well-validated “five-times-sit-to-stand test” and global cognitive performance. Using this simple stand-up muscle test in general practices as a screening tool for cognitive impairment would be desirable (4).

REFERENCES

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REFERENCES

Conflict of interest statement
The authors declare that no conflict of interest exists