Dementia Prevention: Vascular Risks, Environmental and Lifestyle Impact

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Risk factors for dementia are divided into modifiable and non-modifiable risks. Whilst, epigenetics involves changes in the protein constituents of chromatin and sidechain alterations of the DNA strand that do not modify the underlying DNA base sequence. Dementia does not abruptly occur, but rather a gradual change in vital cellular pathways that transforms healthy state into neurodegeneration and a dysfunctional state. Epigenetic alterations are related to disease development, environmental exposure, drug treatment and aging. Epigenetic changes are reversible and can be potentially aimed for pharmacological intervention.

Several studies have revealed that vascular risk factors; hypertension, hyperlipidaemia, diabetes mellitus, smoking, obesity, and lack of physical exercise in midlife and a lesser extent in late life, are associated with an increased risk of dementia. The vascular component might offer chances for treatment and prevention strategies.

Lifestyle and physical fitness are important issues for the risk of dementia. A recent review showed that there is a dose–response relationship between leisure time physical activity and a risk for dementia. Physical frailty is also related to longitudinal decline in global cognitive function among the non-demented older adults. Current meta-analysis demonstrated that sleep disturbances could predict the risk of incident dementia. Insomnia is correlated with incident Alzheimer disease, and sleep disordered breathing can be a risk factor of all-cause dementia.

In the Lancet, Chen and colleagues have recently concluded that living close to heavy traffic is associated with a higher incidence of dementia. The dementia study from Sweden estimated the etiologic fraction of dementia incidence attributed to exposure of up to 16%, indicating that local traffic pollution could be one of the most important risk factors identified. The robust observation of dementia linking urban versus rural residents, opens up a global health concern for people.

To conclude, all vascular risk factors, lifestyles, air and noise pollution are potential modifiable dementia prevention issues. Epigenetics also play a role in neurodegenerative development.

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