

Brain volumetric changes in menopausal women and its association with cognitive function: a structured review

ABSTRACT

The menopausal transition has been proposed to put women at risk for undesirable neurological symptoms, including cognitive decline. Previous studies suggest that alterations in the hormonal milieu modulate brain structures associated with cognitive function. This structured review provides an overview of the relevant studies that have utilized MRI to report volumetric differences in the brain following menopause, and its correlations with the evaluated cognitive functions. We performed an electronic literature search using Medline (Ovid) and Scopus to identify studies that assessed the influence of menopause on brain structure with MRI. Fourteen studies met the inclusion criteria. Brain volumetric differences have been reported most frequently in the frontal and temporal cortices as well as the hippocampus. These regions are important for higher cognitive tasks and memory. Additionally, the deficit in verbal and visuospatial memory in postmenopausal women has been associated with smaller regional brain volumes. Nevertheless, the limited number of eligible studies and cross-sectional study designs warrant further research to draw more robust conclusions.