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Suicide in Late-Life Major Depressive Disorder: A Review of Structural and Functional Neuroimaging Studies

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Abstract : Suicide prevention is a global problem that needs to be taken seriously. Investigating the mechanisms of suicide in major depressive disorder (MDD) separately through neuroimaging technology is essential for effective suicide prevention. And it's particularly urgent in geriatric depressive patients since older adults are more likely to use rapidly deadly means, and suicidal behavior is more lethal for older adults. The current study reviews five studies related to suicide in geriatric MDD that uses neuroimaging methodology in order to analyze the relevant neurobiological mechanisms. The majority of the studies found significant white matter and grey matter reduction or lesion widespread in multiple brain regions, including the frontal and parietal regions, the midbrain, the external capsule, and the cerebellum. Regarding the cognitive impairment in geriatric MDD, the reward signals were found weakened in the paralimbic cortex. The functional magnetic resonance imaging (fMRI) studies also found hemodynamic changes in the right dorsolateral prefrontal cortex (DLPFC), orbitofrontal cortex (OFC), and right frontopolar cortex (FPC) regions in late-life MDD patients with suicidal ideation. Future studies should consider the age of depression onset, more accurate measurements of suicide, larger sample size, and longitudinal design.

Keywords : brain imaging, geriatric major depressive disorder, suicidality, suicide
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