

Neuroimaging Of Dementia And Current Updates

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Neuroimaging of dementia composed of structural based using high resolution volumetric MR imaging and molecular imaging based using advanced MR imaging technique such as DWI, DTI, SWI, MR perfusion, fMRI and MR spectroscopy and metabolic based using nuclear medicine technology such SPECT and PET imaging with varying radioisotopes.

Dementia imaging classification usually based on clinical presentations and underlying pathological process. At present, detailed biochemical knowledge of neurodegenerative disease has been improved and the classifications have shift toward this side. For example the group related to “tauopathies” such as Alzheimer’s disease, chronic traumatic encephalopathies (CTE), corticobasal degeneration, frontotemporal lobar degeneration (FTLD), Pick disease and progressive supranuclear palsy. The group related to synucleinopathies such as diseases with Lewy bodies and multiple system atrophy (MSA). The group related to cerebral amyloidosis such as cerebral amyloid angioapthy (CAA), transthyretine-associated cerebral amyloidosis and neuronal intranuclear hyaline inclusion disease (NIHID). The other groups include spinocerebellar ataxia, Huntington disease, hereditary spastic paraplegia, amyotrophic lateral sclerosis (ALS), clinically unclassifiable parkinsonism (CUP), unverricht-Lundborg disease and prion disease which composed of Creutzfeldt-Jakob disease of sporadic, familial and iatrogenic types, etc.

MR Imaging diagnosis of neurodegenerative disease usually depends on both clinical presentations and imaging findings. The main purpose of imaging is to exclude the treatable causes of dementia such as subdural hematoma, hemodynamically significant dural arteriovenous fistula and hydrocephalus. After that confirm and classified the causes of dementia. Imaging is also used to follow up treatment and monitoring the progression of the disease process. Appropriate utilization of imaging in dementia is considered according to socioeconomic and availability of the technology in each country.