

Relationship Between Obesity, Alzheimer's Disease, and Parkinson's Disease: an Astrocentric View

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Obesity is considered one of the greatest risk to human health and is associated with several factors including genetic components, diet, and physical inactivity. Recently, the relationship between obesity and numerous progressive and aging-related neurodegenerative diseases such as Parkinson's disease (PD) and Alzheimer's disease (AD) have been observed. Thus, the involvement of the most abundant and heterogeneous group of glial cells in neurodegenerative diseases, the astrocytes, is caused by a combination of the failure on their normal homeostatic functions and the increase of toxic metabolites upon pathological event. Upon brain damage, molecular signals induce astrocyte activation and migration to the site of injury, entering in a highly active state, with the aim to contribute to ameliorating or worsening the pathology. In this regard, the aim of this review is to elucidate the relationship between obesity, Alzheimer's disease, and Parkinson's disease and highlight the role of astrocytes in these pathologies. © 2016, Springer Science+Business Media New York.

Alzheimer's disease

Astrocytes

Neuroinflammation

Obesity

Parkinson's disease

advanced glycation end product

alpha synuclein

dopamine receptor

adipose tissue

Alzheimer disease

amyloid neuropathy

antiinflammatory activity

astrocyte

astrocytosis

cell function

cognition

degenerative disease

disease association

disease course

disease predisposition

food intake

hormonal regulation

human

hyperglycemia

insulin resistance

life expectancy

lipid diet

memory

nerve cell necrosis

nervous system inflammation

neurofibrillary tangle

nonhuman

obesity

Parkinson disease

prevalence

Review

senile plaque

substantia nigra

Alzheimer disease

animal

astrocyte

biological model

inflammation

obesity

Parkinson disease

pathology

Alzheimer Disease

Animals

Astrocytes

Humans

Inflammation

Models, Biological

Obesity

Parkinson Disease