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Neurodegenerative Changes in Aging Rats

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The choroid plexus in the brain ventricles consists of epithelial cells, fenestrated blood vessels, and the stroma, dependent on various physiological conditions. Changes of the rat choroid plexus, characterized by reduction of the capillaries (20%) and atrophy of epithelial cells, are evidence of aging degeneration processes. GD1a gangliosides could be used as biomarkers of the neurodegeneration. Serum IgG anti-GD1a titer was determined in young and aging rats to establish the existence of neurodegeneration process. Serum IgG anti-GM1 titer correlated with demyelination and serum IgG anti-GM3 titer correlated with loss of integrity of the blood brain barrier (BBB). Our morphological and immunological studies demonstrated that changes in the structure of the plexus choroideus, neurodegeneration, demyelination and damage of the integrity of the BBB are available in adult rats.

Key words: aging rats, choroid plexus blood vessels, morphometric analysis, serum IgG anti-ganglioside antibodies, neurodegeneration.