Astrocyte responses in human optic nerve head with primary open-angle glaucoma

Varela, Hernan J.

Hernandez, M. Rosario

Purpose: To identify and characterize astrocyte responses and reactivation in human optic nerve heads from patients with primary open-angle glaucoma. Methods: Fifteen optic nerve heads with primary open-angle glaucoma and 13 normal controls were fixed in 4% paraformaldehyde, paraffin embedded, and stained for immunofluorescence and immunoperoxidase. The antibodies used were against glial fibrillary acidic protein (GFAP) and against neural cell adhesion molecule (N-CAM). Results: Two subpopulations of type 1 astrocytes exist in the normal optic nerve. Type 1A astrocytes express only glial fibrillary acidic protein and type 1B express both glial fibrillary acidic protein and neural cell adhesion molecule. These are the major cell subpopulations in the lamina cribrosa and prelaminar regions, In primary open angle glaucoma, type 1B astrocytes in the prelaminar region showed increased immunoreactivity for glial fibrillary acidic protein and neural cell adhesion molecule, and cytoplasmic enl