Histological maturation of astroglial cells in the archicortex of young hypothyroid rats

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The maturation of fibrous astrocytes was studied in the archicortex (hippocampus) of rats rendered hypothyroid by perinatal administration of propylthiouracil (PTU). A decrease in the number of protoplasmic processes and end-feet in fibrous astrocytes from the cortical molecular layer was observed. The diameter of the perikaryon and length of the prolongations were also decreased. In animals rehabilitated after weaning, the diameter of the perikaryon and length of protoplasmic processes returned to normal while that of number of prolongations per astroglial cell remained unchanged. It is postulated that hypothyroidism induced immediately after birth impairs differentiation of astroglia in the archicortex of the rat brain, probably as a response secondary to altered neuronal and capillary development.