Response of amoeboid and differentiating ramified microglia to glucocorticoids in postnatal rats: a lectin histochemical and ultrastructural study

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摘要

Abstract

After glucocorticoid injection(s), the number of amoeboid microglial cells (AMC) in the corpus callosum labelled by lectin was markedly reduced when compared with the corresponding control rats. In rats killed at the age of 7 days, all the labeled cells differentiated to become ramified microglia. Ultrastructurally, the AMC in glucocorticoid-injected rats were extremely vacuolated and showed increased lipid droplets. Furthermore, the cells displayed varied lectin labelling patterns especially at both the trans saccules of the Golgi apparatus and lysosomes. In differentiating ramified microglia, massive cellular debris and lectin-stained vesicles or vacuoles were observed; some of the latter appeared to fuse with the plasma membrane. The most striking feature after glucocorticoid (GCC) treatment was the complete diminution of lectin labelling at the Golgi saccules in some differentiating ramified microglia. The present results have demonstrated different effects of glucocorticoids on AMC and differentiating ramified microglia. The differential response of AMC and differentiating ramified microglia to the immunosuppressive drugs may be attributed to the fact that these cells in the postnatal brains subserve different functions or that they are at different differentiation stages. In other words, the sensitivity of microglial cells to the immunosuppressive drugs is dependent upon the stage of cell maturation/differentiation.