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Identification and clinical significance of folliculo-stellate cells in normal hypophysis and adenomas

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Abstract

Background: Folliculo-stellate cells were first identified with electron microscopy as a non-hormone secreting accessory cells, star-shaped and follicle-forming cells. They represent about 4-20% of pituitary cells from the anterior pituitary lobe. The folliculo-stellate cells control several anterior pituitary activities. However, they do not produce hormones, but they produce growth factors, cytokines, vascular endothelial growth factor (VEGF), basic fibroblast growth factor (bFGF), leukemia inhibitory factor (LIF), IL-6, and macrophage migration inhibitory factor (MIF), IL-1 β and TNF- α . Regardless of a long period of pituitary research and many morphological, cytophysiological studies, it has been reported that a precise understanding of the major functions of folliculo-stellate in the pituitary gland remains unknown. Consequently, there are still many unsolved issues.

Conclusions: This article intends to review the characteristics of folliculo-stellate cells and their uncertain functions in the adenohypophysis, such as their importance as stem cells, in the process of maturation and aging. New researches about the origin and differentiation of folliculo-stellate cells may provide many relevant answers about physiopathology of the pituitary gland and the pathogenesis of pituitary tumors, as well as their influence on the quality of life. Immunohistochemical profile studies of folliculo-stellate cells in pituitary gland, can be useful in elucidation of morphological features and may have a predictive role for the early identification of pituitary microadenomas, prognosis of pituitary tumors and treatment.

Key words: folliculo-stellate cells, S-100 protein, hypophysis, pituitary tumor.

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