



Regulating effect of MMP-9 and TIMP-1 in pituitary adenoma invasion

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ABSTRACT. Pituitary adenomas can cause endocrine disorder and organ damage, with some aggressive ones leading to a high postoperative recurrence rate. The occurrence and development of these type of tumors is closely related with matrix metalloproteinases (MMPs) and endogenous specific tissue inhibitor of MMPs (TIMPs). In this study, the relationship between pituitary adenoma invasion and the changes in MMP-8 and TIMP-1 expressions is analyzed. Specimens from sixty patients with pituitary adenoma were collected in our hospital after surgery, including thirty cases of invasive pituitary adenomas and thirty cases of noninvasive pituitary adenomas. Western blotting and real-time PCR were used to detect MMP-8/TIMP-1 protein and mRNA levels, respectively, in the two types of pituitary adenomas, while ELISA was used to detect both compounds' levels in the patient's serum. Compared with noninvasive pituitary adenomas, MMP-

8 was significantly overexpressed in invasive pituitary adenomas, while TIMP-1 was obviously lower ($P < 0.05$ for both). Moreover, MMP-8 mRNA expression in invasive pituitary adenomas was significantly higher than in noninvasive pituitary adenomas, while TIMP-1 mRNA expression was markedly lower ($P < 0.05$ for both). Finally, MMP-8 expression in the serum is upregulated in patients with invasive pituitary adenomas relative to the noninvasive ones, and the expression of TIMP-1 significantly reduced ($P < 0.05$ for both). These results show that increased MMP-8 and decreased TIMP-1 expressions are closely related to the invasive pituitary adenoma, and can be helpful for the evaluation.

Key words: Pituitary adenoma; MMP-8; TIMP-1; Invasion