

TIMPs and MMPs expression in nasal polyps

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Nasal polyposis is a chronic inflammatory disease characterized by inflammatory invasion of nasal mucosa, changes in cells differentiation, thickness reduction and remodelling of basal membrane, hyperplasia of mucous glands, extracellular matrix deposition. MMPs shown a proteolytic activities towards several components of extracellular matrix, play an important role in connective tissue remodeling. MMPs are a proteins family including 25 isoforms of Ca^{2+} and Zn^{2+} dependant endopeptidases. MMPs are inactive and can be activated by proteases removing some amino acids. Tissue inhibitors of matrix metalloproteinases (TIMPs) are natural inhibitors of MMPs. TIMPs inhibiting MMPs activation by MMPs/TIMPs complexes: TIMP-1 and TIMP-2 are soluble protein, inhibiting mainly MMP-9 and 2, TIMP-3 is mainly associated to ECM. The balance between MMP/TIMP is very critical in matrix remodeling and various physiological processes. Imbalances between these enzymes and inhibitors may cause pathological processes such as chronic inflammation, degenerative disease and tumour invasion. In our study we aimed at demonstrating MMP/TIMP imbalance in nasal polyposis, similar to other pathological processes. The complex structure of polyp formation is still unknown. In this research nasal polyp specimens were obtained from 96 patients with nasal polyposis during endoscopic sinus surgery. Bullous middle turbinates with normal appearing mucosa of fifteen non-smoker patients free of any allergic or infectious diseases of nose or sinuses were used as controls. Patients were divided in three groups: patients of group A have morphostructural polyps; patients of group B have syndromic polyps; patients of group C have allergic polyps. We investigate MMP-1, MMP-2, MMP-3, MMP-9, TIMP-1, TIMP-2, TIMP-3 expression in our specimens using immunohistochemistry, Western Blot Analysis and RT-PCR methods.

Our results shown a interesting relationship between MMPs/TIMPs imbalance and nasal polyps formation.

References

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