Diagnostic Pathology

Oral presentation

COX-2 expression in thymomas and thymic carcinomas: a novel therapeutic target?

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Aims

The treatment of advanced stage thymomas and thymic carcinomas is multimodal and includes surgery as well as radiochemotherapy. New therapeutic targets such as EGFR and c-kit are currently under investigation. A number of studies have shown a protumorigenic potential of Cyclooxygenase-2 (COX-2), an enzyme of the prostaglandin metabolism, in a variety of human malignancies, but so far it is unknown whether COX-2 is expressed in epithelial tumors of the thymus.

Methods

Using tissue microarrays, the expression of COX-2, microsomal-PGES-1 and -PGES-2 (mPGES-1 and mPGES-2), as well as EGFR was evaluated in thirty-four cases of different subtypes of thymoma and thymic carcinomas. Furthermore, twenty-seven additional cases of thymomas and thymic carcinomas were analysed by COX-2 western immunoblot analysis and compared with six normal thymi from young children.

Results

COX-2 was expressed in all thymoma- and thymic carcinoma subtypes. When measuring the optical color intensity, no significant differences between the subtypes could be detected. A weak correlation between the expression of COX-2, mPGES-1 and mPGES-2 as well as EGFR was found. Western blot analysis of COX-2 expression revealed an up-regulation compared with normal thymus.

Conclusion

COX-2 is expressed in all subtypes of thymomas and thymic carcinomas and represents therefore a potential novel therapeutic target beside EGFR and c-kit. A combined therapy using COX-2 inhibitors in addition to the evolving anti-EGFR antibody therapy may be considered as treatment option, especially when there is no response to established chemotherapeutic schemes, since this combination has a positive impact on the treatment of other malignancies.