DISTINCT PROFILE OF GLYCOSAMINOGLYCANS IN THE DIFFERENTIATED THYROID CARCINOMA

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Differentiated thyroid cancers (papillary-PTC and follicular-FTC) are the most common endocrine malignancies. In PTC, about 70% has a known genetic event specially RET/PTC rearrangement and BRAF mutation. The clinicopathological outcome is frequently associated with these genetic markers although in some cases the behavior is poorer understood. It is known that glycosaminoglycans are involved in the tumorigenesis of several neoplasias. In this study we investigate if such compounds are differentially expressed according to these genetic events. Two papillary thyroid carcinoma cell lines, one positive for BRAF mutation (NPA) and the other with RET/PTC rearrangement, were cultured in the presence of radioactive sulfate. Glycosaminoglycans and proteoglycans were analyzed by gel electrophoresis and hyaluronan by an ELISA-like fluoroassay. TPC-1 synthesized significantly more proteoglycans than NPA (476.4 ± 25.1 versus 390.9 ± 43.1 cpm/mg protein). Moreover, the glycosaminoglycans composition was also different: comparing to TPC-1, NPA synthesized predominantly chondroitin sulfate (64% versus 44%). Hyaluronan analysis showed values 20-times higher in the TPC-1 if compared to NPA (213.2 ± 9.4 versus 10.3 ± 1.1 ng/mg protein). There are not explanations for such findings but a possibility is that the higher amount of chondroitin sulfate might be associated with the more aggressive behavior in the tumors bearing BRAF mutations and differential expression of hyaluronan synthases or hyaluronidases could also be involved.
Supported by Fapesp and CNPq.