

The clinicopathological significance of monocarboxylate transporters (MCTs) in germ cell tumors

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BACKGROUND: Since the role of monocarboxylate transporters (MCTs) in germ cell tumors (GCTs) is little explored, the opportunity to search the biological relevance of these metabolic markers and their auxiliary protein CD147 in this type of tumor arises. The study of these metabolism-related proteins in GCTs may contribute to their identification as potential prognostic and predictive markers, and, moreover, assist in the identification of new therapeutic targets. **HYPOTHESIS:** MCTs alone or associated with other factors may contribute to the clinical practice as diagnostic or prognostic markers, as well as therapeutic targets in GCTs. **METHODS:** Retrospective cohort study, with 262 GCT cases with tumor tissue available in the pathology service of the Barretos Cancer Hospital. The clinical data collection was performed by means of a review of the medical records. A total of 9 blocks of tissue microarray (TMA) were obtained for immunohistochemistry (IHC), being 6 blocks of tumor tissue and 3 blocks of normal tissue. Pearson chi square test or Fisher exact test were used to compare the frequency of expression of the different proteins and their association with the patients' clinicopathological data. The Mann-Whitney test was used to evaluate the association between the expression of markers and the tumor size. Overall survival and disease-free survival curves were estimated using the Kaplan-Meier method and data were compared using the log rank test. **RESULTS:** In malignant testicle tumors, MCT1 was associated with stage, distant metastasis, N stage and histological type; MCT2 was associated with T stage; MCT4 with stage, distant metastasis, tumor size, T and N stages, histological type, risk stratification and vascular invasion; while CD147 was associated with stage, distant metastasis, N stage and histological type. Among these tumors, the expression of MCT4 and CD147 was associated with lower overall and event free survival. In malignant ovarian tumors, there was only association between MCT1 and histological type. Among these tumors, the expression CD147 was associated with lower overall and event free survival. **CONCLUSIONS:** The metabolism-related proteins evaluated in the present study were associated with clinicopathological characteristics of worst prognosis, as well as lower global and event free survival, especially in testicular tumors. Therefore, this study highlights the importance of MCTs and CD147 as potential prognostic or predictive markers, and also as possible therapeutic targets in GCTs.