MicroRNA expression analysis and Multiplex ligation-dependent probe amplification in metastatic and non-metastatic uveal melanoma - DTU Orbit (24/01/2019)

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Purpose: To determine the association of microRNA expression and chromosomal changes with metastasis and survival in uveal melanoma (UM). Methods: Thirty-six patients with UM were selected based on the metastatic status, and clinicopathological data were collected. Multiplex ligation-dependent probe amplification (MLPA) was used to identify chromosomal changes. Chromosomal changes and clinicopathological data were correlated with survival and metastasis. The microRNA expression was analysed in 26 of the 36 archived UM samples. Unsupervised analysis, differential expression analysis and Cox regression analysis were performed to determine the association with metastasis and survival. Results: Metastasis and metastatic death occurred in 20 patients, two patients died of other causes and one patient of unknown causes. A significant association between increasing size category (p = 0.002, log-rank), extraocular extension (p = 0.001), chromosome 3 loss (p = 0.033) and lp loss (p = 0.030) and development of metastases was observed. Tumour, node, metastasis (TNM) staging showed a significant association with survival (p <0.0001, log-rank). Adjusting for gender and age TNM size category T4 (p = 0.016, Cox regression analysis), mixed (p = 0.029) and epithelioid (p = 0.0058) cell types, chromosome 3 loss (p 0.014) and 8q gain (p = 0.010) were significant prognosticators for a poor survival. Hierarchical clustering divided the UM into three groups based on microRNA expression. The clusters showed no association with clinical or histopathological features, TNM staging, metastasis or survival. Differential expression analysis did not reveal microRNAs related to metastasis or survival. Conclusions: The prognostic significance of chromosome 3 loss and 8q gain identified by MLPA analysis was confirmed in archived UM samples. The value of microRNA expression as a predictor of metastasis and survival in UM could not be confirmed.

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