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Diagnostic and prognostic values of blood microRNA-Let7A for osteosarcoma

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Abstract: Objective In view of the poor prognosis and difficulties in the diagnosis of osteosarcoma, and the functionality of microRNA-Let7A in different types of human cancers, our study aimed to explore the diagnostic and prognostic values of microRNA-Let7A for osteosarcoma. **Methods** A total of 39 patients with osteosarcoma and 19 normal healthy people were included in this study. All patients received surgical resection, and tumor tissues as well as pericarcinomatous tissues were collected during surgical operation. Venous blood (2 ml) was extracted from each participant. Expression of microRNA-Let7A in tumor tissues and pericarcinomatous tissues, and expression of E2F2 and microRNA-Let7A in blood of each participant was detected by qRT-PCR. ROC analysis was performed to evaluate the diagnostic values of blood E2F2 and microRNA-Let7A for osteosarcoma, and prognostic values of microRNA-Let7A for osteosarcoma was evaluated by survival curve comparisons. **Results** Expression level of microRNA-Let7A was significantly lower in tumor tissues than that in pericarcinomatous tissues. MicroRNA-Let7A expression in blood was significantly downregulated in osteosarcoma patients compared with normal control. Expression of microRNA-Let7A was negatively correlated with the expression of E2F2 in blood of osteosarcoma patients. Compared with E2F2, blood microRNA-Let7A can more effectively predict osteosarcoma. Overall survival rate of osteosarcoma patient with low blood expression level of miRNA-let-7a was significantly lower than that of patients with high blood expression level of miRNA-let-7a. **Conclusion** Blood microRNA-Let7A is a promising diagnostic and prognostic biomarker for osteosarcoma.

Keywords: osteosarcoma; microRNA-Let7A; venous blood; qRT-PCR; ROC; pericarcinomatous

Introduction

As a type of malignancy that develops from bone tissues, osteosarcoma mainly affects teenagers and young adults [1]. Osteosarcoma is a relatively rare type of cancer. In the