

Virtual Meet on **MEDICAL ONCOLOGY AND TUMOUR CELLS**

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**The role and mechanism of the degree of immune cell infiltration on the prognosis and immunotherapy of osteosarcoma****Qingshan Huang***Peking University People's Hospital, Beijing 100044, China*

**Background:** Immunotherapy in osteosarcoma has yielded unsatisfactory results. Hence, identifying a marker for improving the efficacy of immunotherapy and prognosis of osteosarcoma would benefit such population. This study explored the role and mechanism of immune cell infiltration in the tumor microenvironment (TME) on the prognosis and immunotherapy of osteosarcoma.

**Methods:** This study devised an immune score (IS) based on ssGSEA to evaluate the relative content (RC) of immune cell in osteosarcoma. The Survminer R package was used to analyze the survival and optimal cut-off point for IS and classify the osteosarcoma into high immune cells infiltrating osteosarcoma (HIOS) and low immune cell infiltrating osteosarcoma (LIOS). The relationship between IS and the RC of immune cells was evaluated using Spearman correlation analysis. The Chi-square test compared the recurrence and metastasis rates of osteosarcoma between the two groups. TIDE and GenePattern were used to predict osteosarcoma response to immunotherapy. Using the Kruskal-Wallis test, Spearman correlation analysis, and GSEA, the mechanism of the degree of immune cell infiltration affecting the prognosis and immunotherapy of osteosarcoma was analyzed.

**Results:** IS reflects the degree of immune cell infiltration in the osteosarcoma TME. HIOS has a lower recurrence rate, metastasis rate, and better immunotherapeutic effect than LIOS. The RC of M1-type macrophages and activity of immune-related pathways positively correlated with IS, while the immune escape and copy number variation (CNV) negatively correlated with IS.

**Conclusion:** Hyperimmune infiltration promotes osteosarcoma prognosis and immunotherapy associated with a high level of M1-type macrophages, low immune escape, immune-related pathway activity, and low CNV.

**Biography**

Qingshan Huang is a PhD student at Peking University, majoring in bone tumors.

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