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Immunotherapies in the Sarcoma Tumours and Retroperitoneal Cells Includes Liposarcoma

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INTRODUCTION

Sarcoma is a group of rare tumours with many subtypes and is generally divided into soft tissue sarcoma and osteosarcoma. Chemotherapy regimens form the mainstay of systemic therapy but are poorly defined beyond the first-line setting and have variable clinical outcomes. Tyrosine kinase inhibitors (TKIs) with broad inhibitory profiles that have been shown to target tumour angiogenesis have an established role in the treatment of sarcoma without changes in characteristic drivers. One of these TKIs, regorafenib, has been evaluated in sarcoma, and clinical data are described in this review. A review of regorafenib data from five phase 2 and one phase 1b clinical trials in more than 10 sarcoma subtypes (both soft tissue and bone) in adult and paediatric patients is presented. Regorafenib has shown clinical benefit in patients with nonadipocyte soft tissue sarcoma, osteosarcoma, and Ewing sarcoma that have progressed on prior therapy. Therefore, patients who otherwise have limited treatment options may benefit from treatment with regorafenib.

DESCRIPTION

Retroperitoneal tumours are very rare. More than 70% of primary retroperitoneal soft tissue tumours are malignant. The most common sarcomas of the retroperitoneum include liposarcoma and leiomyosarcoma, although other sarcomas can occur in addition to benign mesenchymal tumours. Sarcoma is a heterogeneous group of tumours with overlapping microscopic features that pose diagnostic challenges to pathologists. Accurate tumour classification has become important for prognosis and new targeted therapies for sarcoma subtypes. This review describes the pathology of retroperitoneal soft tissue sarcoma that is important to surgical oncologists. Sarcoma is a malignant tumour of mesenchymal origin that can occur at any age. The rarity of these tumours combined with numerous histologic subtypes makes sarcoma research difficult. Organoids are complex three-dimensional cell culture systems derived from stem cells that retain the ability to differentiate into the cell types of the tissue of origin. The aim of the current review is to examine the current state of patient-derived organoids and their potential for modelling tumorigenesis and performing sarcoma drug screening. After conducting a literature search to identify relevant studies, we were able to identify 16 studies published between 2019 and 2022. The current manuscript represents the first comprehensive review of the literature focused on the use of organoids for disease modelling and drug susceptibility testing in various sarcoma subtypes.

CONCLUSION

Sarcoma is a rare malignant tumour of mesenchymal origin that can occur in any part of the body throughout a person's lifetime. Surgery remains the treatment of choice, but response to conventional treatments such as chemotherapy and radiation is minimal. Immunotherapy has emerged as a new approach to treat various types of cancer, but its efficacy in soft tissue sarcoma and osteosarcoma is limited to certain subtypes. A growing body of evidence indicates that interactions between cancer and stromal cells and their microenvironment play an important role in the efficacy of immunotherapy. However, the pathophysiological and immunological properties of the sarcoma tumour microenvironment relevant to advances in immunotherapy have not been extensively studied. Here, we provide an up-to-date overview of different immunotherapeutic modalities as potential treatments for sarcoma, identify barriers that the sarcoma microenvironment presents to immunotherapy, and highlight its relevance to compromising efficacy.

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