Introduction to Soft Tissue Sarcomas

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Soft tissue sarcomas (STS) and bone sarcomas comprise a diverse set of separate clinical entities with different degrees of malignancy, biological behavior, and specific therapeutic options. The incidence of STS is relatively low (4–5/100,000/year in Europe) [1], whereas bone sarcomas account for 0.2 % of malignant tumors registered in the EUROCARE database [2].

More than 50 different STS subtypes have been described, showing great variations in clinical course of the disease and chemosensitivity. The choice of treatment is guided by prognostic factors such as tumor stage, histological subtype, location, grade, and patient age and is influenced by the center's experience and philosophy and patient clinical characteristics. Curative-intent treatment strategies almost always include surgery, with (neo)-adjuvant radiation therapy and/or systemic chemotherapy being incorporated in the decisions on multidisciplinary treatment of sarcoma patients. By contrast, less than 10 % of patients with metastatic/advanced soft tissue sarcoma can be cured [3].

During recent years, the development of molecular biology has led to the integration of novel, targeted therapies into the treatment of sarcomas. Due to the ever-increasing number of new molecules, the combination of radiographic imaging and specific molecular techniques is a valuable tool in the decision-making process as to whether their development should be continued. In clinical practice, imaging is used to define criteria for response and progression, allowing for the determining of a suitable treatment strategy that is beneficial for the patient and for the identification of appropriate clinical study primary endpoints. Noninvasive imaging methods, e.g., ultrasonography, computed tomography (CT), magnetic resonance imaging (MRI), and [18F] fluorodeoxyglucose/positron emission tomography (FDG/PET) are analyzed in relation to their impact on the treatment of STS and bone sarcomas.

References

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