

# Chemotherapy's Role in Bone Cancer Treatment

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## Abstract

Chemotherapy plays a pivotal role in the comprehensive treatment of bone cancer, a rare and aggressive malignancy that poses significant challenges to patients and healthcare providers. As a systemic treatment, chemotherapy utilizes potent drugs to target and destroy rapidly dividing cancer cells, inhibiting tumor growth and preventing metastasis. In bone cancer treatment, chemotherapy serves multiple crucial functions, including neoadjuvant therapy to shrink tumors before surgery, adjuvant therapy to eradicate residual cancer cells post-surgery and palliative care to alleviate symptoms and improve the quality of life for advanced-stage patients. Through ongoing research and clinical advancements, chemotherapy for bone cancer has evolved, leading to more targeted and personalized therapies, thereby reducing side effects and enhancing treatment efficacy. Challenges persist; however, as bone cancer's aggressive nature and potential drug resistance necessitate continued investigation and innovative approaches. The pursuit of further research, multidisciplinary collaboration, and precision medicine holds promise for continually refining chemotherapy's role in bone cancer treatment, offering hope and improved outcomes for patients facing this formidable disease [1].

**Keywords:** Chemotherapy; Bone cancer; Cancer cells; Post-surgery

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chemotherapy for bone cancer. Researchers have developed more targeted and personalized therapies, reducing the side effects often associated with traditional chemotherapy. Targeted therapies specifically attack cancer cells while sparing healthy cells, leading to a more favorable side effect profile and improved patient tolerance.