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Progress in the Treatment of osteosarcoma.A Population-Based Study of 3089 Patients Diagnosed over 33 Years

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Background:

The 1970s and 1980s saw great progress in the treatment of osteosarcoma, but subsequent trials have failed to improve the survival of patients with this disease.

Methods:

We searched the Surveillance, Epidemiology and End Results (SEER) database for cases of osteosarcoma diagnosed between 1973 and 2005. Three eras were defined: era 1 (1973-1985), era 2 (1986-1995), and era 3 (1996-2005).

Results:

We identified 3089 patients (median age, 19 years; 56% males) with osteosarcoma. Primary tumor sites were mainly the lower limbs (66%), upper limbs (11%), head and neck (8.8%), and pelvis (7.6%). Older patients had a higher proportion of axial tumors and a lower survival estimate. Survival improved significantly after 1986 ($P < 0.0001$) but not after 1996 ($P = 0.29$). A Cox proportional hazards regression model identified age, primary site, and stage as significant predictors of survival throughout the study period. Age > 45 years at diagnosis, tumor sites other than head and neck and lower limbs, and metastatic tumors were significant adverse prognostic factors.

Conclusion:

Despite early advances, more than a third of patients with osteosarcoma have continued to die for the past 2 decades. The worst outcomes occur in older patients, patients with primary tumors in unfavorable sites, and those with metastatic disease. There is an urgent need for more collaborative and basic research.

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