Aberrant expression of the human epidermal growth factor receptor 2 oncogene is not a common feature in osteosarcoma

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Human epidermal growth factor receptor 2 expression in osteosarcoma and its relationship to prognosis have been the subject of several conflicting reports, most of them relying on immunohistochemical studies. Because the urgent need of prognostic markers and effective new treatment options for osteosarcoma patients, we evaluated the role of human epidermal growth factor receptor 2 in 2 well-characterized sets of pretherapeutic osteosarcoma samples (46 paraffin-embedded and 46 fresh-frozen biopsy samples) using immunohistochemistry with 2 different antibodies [DAKO A0485 (Glostrup, Denmark) and Novocastra CB11 (Newcastle, UK)] as well as fluorescence in situ hybridization, real-time polymerase chain reaction, and SNP array analyses and correlated our findings with clinicopathological parameters. However, our study failed to detect unequivocal evidence of human epidermal growth factor receptor 2 gene amplification or overexpression of human epidermal growth factor receptor 2 messenger RNA or protein in any of the investigated tumors. Only in a small subset of samples, a moderate increase in messenger RNA levels (13.6%) or focal membranous immunoreactivity (8.7%; A0485) was detected but did not correlate with survival or response to chemotherapy. Cytoplasmic staining was identified more frequently (63%; CB11) but again did not show any association with clinicopathological parameters. In conclusion, our study does not support a role for human epidermal growth factor receptor 2 as a prognostic marker in osteosarcoma.
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