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Second cancers after endoprosthetic replacement: is metal bad for you?

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Background: Patients who have endoprosthetic replacements have a large amount of metal placed in their bodies. With the passage of time metal ions may be leaked into the body. Concern over the association of metal ions and cancer has increased following recent reports in relation to metal on metal joint replacements. This study has therefore looked at the incidence of second cancers in patients who had an endoprosthetic replacement (for cancer) in the past.

Methods: All patients who had an endoprosthetic replacement at our centre have been followed up indefinitely. We identified all patients who had a second cancer, unrelated to the primary which they had the initial endoprosthesis for. The incidence of second cancer was confirmed by cross referencing these patients to the Central Cancer Registry which documents the incidence of all cancers arising in England.

Results: Between 1998 and 2004, 529 extremity bone sarcoma patients have had an endoprosthetic replacement. Patients were censored at the time of follow up or the time of death either due to the original cancer or natural causes. The follow up included 3000 patient prosthesis years. The mean age at insertion of the original prosthesis had been 30 (range 3 to 85). Of the 529 patients, 254 have died at a mean of 35 years of age and 275 are alive. There were 11 patients with a second cancer. The incidence was 1.5% at 5 years and 1.9% at 10 years after insertion of the endoprosthesis. The most common second cancer was breast cancer.

Conclusion: The incidence of a second cancer in patients who have had an endoprosthesis is 1.9% at 10 years. There is no evidence of an increased risk of second cancer in patients with an endoprosthetic replacement.

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