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Quality of life after malignant bone cancer surgery; a long term follow-up study

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Background: During a previously conducted study, quality of life (QoL) of children and adolescents after malignant bone tumor surgery was longitudinally evaluated. Significant improvements were reported during this two years follow-up. However, QoL scores differ from scores of healthy peers and it remains unclear. if further improvements could be expected after this period. Aim of the present study was therefore to assess progression of QoL scores of the remaining patients from the evaluation at 2 years until long-term follow-up at minimal 5 years postoperative.

Methods: Malignant bone tumor survivors of the initial short-term study were included into this multicenter study. Long-term follow-up assessments were done at least 5 years after surgery. QoL was measured with the Short Form-36 (SF-36), the TNO-AZL Adult's Quality of Life Questionnaires (TAAQOL) and the Bone tumor (Bt)-DUX. Statistical analysis included Linear Mixed Model Analysis.

Results: From the original cohort of 44 patients; 20 patients were included for the long term follow-up reassessment, 10 of them were boys and 10 girls, and mean age at surgery was 15.1 years and follow-up duration 7.2 years. Twenty-one patients of the initial cohort (47%) died on disease; one patient was excluded due to social-emotional problems and 2 refused to participate in the extension of the study. Fifteen patients (75%) underwent limb-salvage and 5 (25%) ablative surgery. At long-term follow-up, patients after bone cancer surgery reported significantly lower QoL scores in comparison with their healthy peers at the Physical Component Summary (PCS) scales of the SF-36 and TAAQOL ($p<.05$). Significant advantages were reported for patients after limb salvage in comparison with ablative surgery at the PCS scale of the SF-36 (mean difference 13.7, $p=.05$) and the cosmetic scale of the Bt-DUX (mean difference 17.7, $p=.04$) . QoL improved significantly during the follow-up at the PCS scale of the SF-36 and TAAQOL and at all subscales of the Bt-DUX ($p< .01$). However, no significant differences were reported between the evaluations at 2 years and long-term follow-up (p; .41-.98).

Conclusions: After 5 year of follow-up, no further QoL improvements were achieved in comparison with the 2 years follow-up.