

**FC-064****Prediction of survival after surgery due to metastases in the extremities****M.S. Soerensen**<sup>1</sup>, T.A. Gerds<sup>2</sup>, K. Hindoe<sup>3</sup>, M. Mørk Petersen<sup>1</sup><sup>1</sup> Department of Orthopaedic Surgery, Musculoskeletal Tumor Section, Rigshospitalet, Copenhagen, Denmark<sup>2</sup> Department of Public Health, Section of Biostatistics, Copenhagen University, Copenhagen, Denmark<sup>3</sup> Department of Orthopaedic Surgery, Rigshospitalet, Copenhagen, Denmark

**Background:** Prediction of survival of patients having surgery due to metastatic bone disease (MBD) in the appendicular skeleton is a valuable tool for a surgeon in ensuring he/she chooses the optimal surgical technique and implants that will outlive the patient and still poses the least surgical trauma possible. Our aim was to develop a prognostic model for predicting survival of patients undergoing surgery due to MBD in the appendicular skeleton.

**Material and Method:** A historical cohort of 130 consecutive patients whom underwent joint replacement surgery due to MBD in the appendicular skeleton in a tertiary orthopedic oncology referral centre during the period January 2003 to December 2008 was included into the study. Primary cancer, preoperatively haemoglobin, fracture vs. impending fracture, Karnofsky score, visceral metastases, multiple bony metastases and American Society of Anaesthesiologist's score was included into a series of logistic regression models. The outcome was the vital status at 3, 6 and 12 months respectively. Results are presented as risk nomograms. The logistic regression results were internally validated based on 1000 cross-validations and reported as time-dependent area under the receiver-operating characteristic curves (AUC) for predictions of outcome at 3, 6 and 12 months postoperatively.

**Results:** Data of 121 patients were included into the model; data of 9 patients were removed due to missing predictor values. The Kaplan-Meier method showed a probability of survival of 66.9% (CI: 58.6%;75.3%), 49.6% (CI: 0.7%;58.5%) and 38.0% (CI: 29.4%;46.7%) at 3, 6 and 12 months postoperatively. The predictive scores obtained from logistic regression showed AUC values of 79.1% (CI: 65.6%;89.6%), 80.9% (CI: 70.3%;90.84%) and 85.1% (73.5%;93.9%) at 3, 6 and 12 months, respectively.

**Conclusion:** For the first time we presented and validated a model for predicting survival after surgery due to MBD in the appendicular skeleton, built solely on material of patients having only surgery in the appendicular skeleton.