A. Farr, M. Margreiter, R. Herout, H. Brix-Samoylenko, M. Marberger, G. Kramer
Department of Urology, Medical University of Vienna, Austria

OBJECTIVES: To determine whether preoperative serum calcium levels and inflammation-related parameters are associated with cancer-specific survival in patients with bladder cancer after radical cystectomy.

METHODS: We retrospectively analyzed the medical records of 97 patients treated with radical cystectomy due to transitional cell carcinoma of the bladder. Preoperative serum parameters were obtained within 24 hours of surgery. Actuarial survival curves were calculated by the Kaplan-Meier method and preoperative laboratory values were evaluated using univariate and multivariate analysis.

RESULTS: Mean age (SE) of patients was 68.3 (1.0) years. Pathological tumor stage (number of patients): pTaG3N0(6), pT1G3N0(14), pT1G3N2(1), pT2G2N0(2), pT2G3N0(25), pT2G3N1(1), pT2G3N2(1), pT3G2N0(2), pT3G3N0(25), pT3G3N1(7), pT3G3N2(8), pT4G3N0(1), pT4G3N2(4). After a median (min-max) follow-up of 5.8 (2.2-9.0) years, 39 patients (40%) have died of bladder cancer, 5 patients (5%) were lost to follow-up and 53 patients (55%) were without evidence of disease. Mean survival (SE) of all patients was 21.4 (2.3) months. Serum calcium levels were inversely correlated with C-reactive protein (r=-0.248; p=0.014). The 5-year cancer-specific survival rate of patients with serum calcium <2.2 mmol/l (n=9) was significantly shorter than that of patients with serum calcium levels within the normal range (n=88; p=0.01). On multivariate discriminate analysis, preoperative hypocalcaemia (p=0.013), anemia (p=0.001) and elevated alkaline-phosphatase (p=0.006) were significant prognostic factors for cancer-specific survival.

CONCLUSION: Preoperative anemia, hypocalcaemia and elevated alkaline-phosphatase are associated with increased risk of cancer-specific death after radical cystectomy. Hypocalcaemia may be referred to vitamin D receptor gene polymorphisms, known to be associated with increased bladder cancer risk and worse prognosis in other malignancies.