Moderate risk-adapted dose escalation with three-dimensional conformal radiotherapy of localized prostate cancer from 70 to 74 Gy. First report on 5-year morbidity and biochemical control from a prospective Austrian-German multicenter phase II trial.

PURPOSE: Evaluation of late side effects and biochemical control (bNED) 5 years after three-dimensional radiotherapy with moderate, risk-adapted dose escalation. PATIENTS AND METHODS: From 03/1999 to 07/2002, 486 patients have been registered in the prospective Austrian-German multicenter phase II trial (AUGE). 399 (82%) localized prostate cancer patients (T1-3 Nx/N0 M0) were evaluated. The low- and intermediate-risk groups were treated with 70 Gy, the high-risk group with 74 Gy, respectively. Additional hormonal therapy (HT) was recommended for intermediate- and high-risk group patients. Late toxicity (EORTC/RTOG) and bNED (ASTRO and Phoenix) were prospectively assessed. RESULTS: Median follow-up was 65 months. Distribution concerning risk groups (low-, intermediate-, high-risk group) showed 29%, 50% and 21% of patients, respectively. HT was given in 87% of patients. The 5-year actuarial rates of late side effects grade≥ 2 for 70 Gy/74 Gy were 28%/30% (gastrointestinal; p = 0.73) and 19%/34% (urogenital; p = 0.06). The 5-year actuarial bNED rate stratified by risk groups (low-, intermediate-,
high-risk group) was 74%, 66% and 50% (ASTRO), and 81%, 80% and 60% (Phoenix), respectively. Within multivariate analysis T-stage and initial prostate specific antigen were significant factors influencing bNED (ASTRO) whereas Gleason Score and duration of HT were not. CONCLUSION: Dose escalation within standard three-dimensional conformal radiotherapy (3D-CRT) up to a level of 74 Gy did not result in significantly increased gastrointestinal side effects, whereas urogenital side effects showed an increase close to significance. However, the total number of patients with severe toxicity was low. To achieve high tumor control rates with acceptable treatment-related morbidity, local doses of at least 74 Gy should be considered, in particular for intermediate- or high-risk patients applying 3D-CRT.