Active Surveillance for Patients with Low-Risk Prostate Cancer: How Does PSA Doubling Time Affect the Risk of Histo-Pathological Progression at Re-Biopsy?

Introduction and Objective: A short PSA doubling time (PSAdt) is a progression criterion for prostate cancer (PCa) patients on active surveillance (AS) while long and/or negative PSAdt is believed to be reflecting slow progression and indolent disease. We wanted to investigate the risk of histo-pathological progression at re-biopsy in patients on AS stratified by whether PSAdt after one year (median 5 PSA measurements) was positive or negative.
Materials and Methods: Patients with low-risk PCa were prospectively followed on AS. Patients eligible for AS at our institution were patients with biopsy Gleason score ≤ 6, PSA ≤ 10, cT < 2a, < 50% tumor in any one core and ≤ 3 positive cores. A few patients with worse diagnostic characteristics were included in the study. Patients were followed with digital rectal examination and PSA every three months and re-biopsied after one year of observation. Histo-pathological progression on re-biopsy was recorded, if either Gleason score ≥ 3+4 or the number of positive cores increased > 3.
Results: Of the 156 patients included, 84 had a positive PSAdt while 72 patients had a negative PSAdt during the first year on AS. No statistical difference between the two groups' baseline data was found. There were 131/156 (84%) who had a re-biopsy where 31/131 (24%) had histo-pathological progression, see figure. The estimated 5-year probability of remaining on AS was 58.1% (95% CI: 50.0;70.2) in patients with positive PSAdt(1yr) compared to 62.5% (95% CI: 48.7;76.3) for those with a negative PSADT(1yr) (*P*= 0.23).
Conclusions: Patients with negative PSAdt(1yr) seems to have the same risk of histo-pathological progression and AS failure as patients with positive PSAdt(1yr). Our results support the use of re-biopsy with regular intervals in PCa patients managed with AS.