The Impact of Body Mass Index on Clinicopathological Outcome and Biochemical Recurrence After Radical Prostatectomy in 1257 Japanese Prostate Cancer Patients

Introduction and Objective: Increasing evidence suggests that obesity was associated with adverse disease and biochemical recurrence in patients with prostate cancer (PCa) treated with radical prostatectomy. However, no study with a large number has been performed to evaluate the relationship between obesity and surgical outcome of PCa in Asia including Japan. Here, we conducted a retrospective multicenter study to determine the effect of body mass index (BMI) on the clinicopathological characteristics and biochemical recurrence among Japanese men who underwent radical prostatectomy.
Methods: We identified 1,268 men treated with radical prostatectomy without any neoadjuvant treatment at 4 medical centers comprising the MJUOG Database between 2001 and 2009. We exclude 11 men with missing BMI information from the study. The patients were categorized into 4 groups using the BMI classification of WHO (underweight, normal range, overweight and obese) and the quartiles of BMI (< 22.2, 22.2 to 23.7, 23.8 to 25.5, ≥ 25.6 kgm2). The association between the BMI categories, clinicopathological characteristics and biochemical recurrence was examined using unpaired t test, chi-square test, Kaplan-Meier methods, multivariate Cox proportional hazard models. Biochemical recurrence was defined as > 0.2 ng/mL.
Results: Median duration of follow-up was 49 months. There were 230 of 1257 (18.1%) patients who had a biochemical recurrence within the follow-up period. Preoperative levels of PSA was the highest in obese group (p=0.007), whereas there was no statistical interaction between prostate volume and BMI categories. The pathological characteristics did not significantly differ among BMI categories. Using both the WHO classification and the quartile categories, there was no statistical differences in biochemical recurrence rate in each BMI groups. After adjusting for other important covariables, the multivariate Cox proportional hazards model showed that increased BMI did not have an independent impact on biochemical recurrence free survival (HR=0.989, 95% CI: 0.957-1.002, *P*=0.648).
Conclusions: Obese patients appear to have low levels of preoperative PSA. BMI was not an associated with biochemical recurrence after radical prostatectomy in Japanese localized prostate cancer. Racial differences may exist for the relationship between obesity and outcomes in patients with PCa who underwent radical prostatectomy.