Outcomes and Predictors of Organ-Confined Prostate Cancer Treated with Radiation Therapy

Introduction and Objectives: To evaluate the outcome and predictors of organ-confined prostate cancer (PCa) treated with external-beam radiotherapy in two tertiary care centres in Indonesia.
Materials and Methods: A total of 96 patients with localised or locally-advanced PCa, who underwent primary radiotherapy from 1995 to 2009 in the national referral hospital or the national cancer centre of Indonesia were included in this study. Overall Survival (OS) and Biochemical Progression-Free Survival (BPFS) were estimated by Kaplan-Meier. Predictors of OS and biochemical recurrence were analysed by multivariate cox- and logistic-regressions. Adjusted variables included age, detection method, pre-treatment PSA, Gleason Score (GS), T stage, D'Amico risk group, radiation dose/type, treatment delay, neoadjuvant, and adjuvant hormonal therapy.
Results: The median follow-up was 61 months. There were 3.1% low-risk, 26% intermediate-risk, and 70.8% high-risk patients. The majority (52.1%) had pre-treatment PSA level of >20ng/mL. Cumulative radiation dose was 60gy, 66-68gy, and >=70gy in 77.1%, 7.3%, and 15.6% patients, respectively. Actuarial 5-year survival of low-risk, intermediate-risk, and high-risk patients were: OS, 100%, 94.7%, and 67.9%, respectively; BPFS, 100%, 94.1%, and 57.1%, respectively. Significant predictors of OS included: High-risk group (Hazard Ratio (HR) 9.35; 95%CI 1.52-57.6; p=0.016), adjuvant therapy (HR 0.175; 95%CI 0.05-0.58; p=0.005), detection by TUR-P (HR 6.81; 95%CI 2.28-20.33; p=0.001), and higher PSA level (HR 1.003; 95%CI 1.00-1.005; p=0.039). The sole predictor of biochemical recurrence was pre-treatment PSA level (p=0.04), with odds ratio of 4.52 (95%CI 1.61-12.65) for PSA >20ng/mL. (Table.1)
Conclusion: Radiotherapy is an effective treatment modality for organ-confined PCa patients in Indonesia, with comparable result to that reported elsewhere. Predictors of poorer outcome include high-risk group, higher pre-treatment PSA, incidental detection by TUR-P, and lack of adjuvant hormonal therapy.

Table 1. Multivariable Predictors of Overall Survival and Biochemical Recurrence

Overall Survival	p	Hazard Ratio	(95% CI)
- Detection by TUR-P *(vs. biopsy)*	0.001	6.81	(2.28 - 20.33)
- Adjuvant therapy *(vs. no adjuvant)*	0.005	0.18	(0.05 - 0.58)
- High-risk *(vs. intermediate-risk)*	0.016	9.35	(1.52 - 57.58)
- Pre-treatment PSA *(continuous variable)*	0.039	1.003	(1.00 - 1.005)
Biochemical Recurrence	**p**	**Odds Ratio**	**(95% CI)**
- Pre-treatment PSA >20ng/mL	0.004	4.52	(1.61 - 12.66)