

Incidence and Predictors of Castration Resistant Prostate Cancer among Prostate Cancer Patients on Androgen Deprivation Therapy at Mbarara Regional Referral Hospital

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ABSTRACT

Background: Prostate cancer is a big threat globally and locally. An advanced form of prostate cancer is CRPC, in which there is disease progression after ADT, poor prognosis and reduced survival.

Objective: This study was to determine the incidence and predictors of CRPC among prostate cancer patients on ADT at MRRH.

Methods: Two hundred and fifty patients with prostate cancer, receiving ADT from 2014 to 2021 were followed up retrospectively at MRRH oncology clinic. Baseline characteristics and follow-up PSA were obtained from the patient charts. CRPC was defined by disease progression biochemically (rising PSA) or radiologically (new metastatic lesions on CT or MRI scan) despite successful castration (testosterone <0.5ng/mL). The incidence rate was obtained as number of events (CRPC) out of total person-time, and cox regression analysis was used to determine the predictors of CRPC.

Results: The incidence rate of CRPC was 232 (95% CI, 195 – 276) per 1000 person-years. Obesity with

adjusted hazard ratio of 2.3 (95% CI, 1.1 – 4.7), PS(ECOG) >1 with 1.7 (95% CI, 1.1 – 2.7), and nadir PSA >4ng/mL, time to nadir PSA <14 months, PSA velocity ≥ 11 , and bone metastasis at ADT initiation with 2.7 (95% CI, 1.6 – 4.5), 3.6 (95% CI, 2.4 – 5.5), 2.1 (95% CI, 1.3 – 3.5), and 1.8 (95% CI, 1.1-3.0) respectively were predictors of CRPC.

Conclusion and recommendation: The incidence rate of CRPC is high at MRRH. Obesity, PS (ECOG) >1, nadir PSA >4ng/mL, time to nadir PSA <14 months, PSA velocity ≥ 11 ng/mL/month, and bone metastasis at ADT initiation are predictors of CRPC. This study highlights the need for close monitoring of PSA kinetics and imaging (CT or MRI) for early diagnosis of CRPC with early therapy modification, and patient education on modifiable factors such as obesity to improve outcomes. Future larger prospective studies should also be done to further study CRPC in MRRH.

Key words: Prostate cancer, CRPC