



Effect of androgen deprivation therapy on body mass composition in Chinese patients with advanced prostate cancer: a prospective cohort study

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Objective

To investigate the effect of androgen deprivation therapy (ADT) on body mass composition in Chinese patients with prostate cancer.

Patients & Methods

Asian Chinese patients with prostate cancer were prospectively recruited. Baseline, disease and treatment information were identified.

The cohort was classified into 1) ADT group and 2) non-ADT group to elucidate the metabolic effect of ADT.

Dual-energy X-ray absorptiometry (DEXA) scan was performed at baseline and 24 months after treatment initiation. A landmark analysis at 24 months was performed for the analysis of subjects. Comparison in lean mass, fat mass and spine T-score was performed. A mixed effect model was used for analyzing the effect ADT exposure and time.

Results

40 patients were included in the landmark analysis. The median age was 75 years-old. 22 (55%) of them received ADT. Nine (40.9%) patients presented with metastatic disease in ADT group. The baseline parameter including body weight, BMI, lean mass, appendicular lean mass, and fat mass are comparable between both groups. No significant difference in baseline medical comorbidities including diabetes, hyperlipidemia and history of cardiovascular disease were noted.

The ADT group experienced a significant drop in lean mass per percentage of body weight with average of -3.4% ($P = 0.019$, 95%CI = -6.1 to -0.6). The average 3.1% drop of appendicular lean mass per percentage of body weight were observed in ADT group, which was significantly higher than non-ADT group ($P = 0.001$, 95% CI = -4.7 to -1.4). The change in fat mass per body weight percentage prior to and 24 months following treatment was not significant. For mean spine T-score, the non-ADT group exhibited no gross change from baseline to 24-months assessment (-0.31 to -0.27) while the ADT group experienced a decrease 0.82 to 0.38), amidst no statistical significance was attained ($P = 0.735$).

Conclusion

The loss of lean mass and bone density is a common and important concern in Asian Chinese patients receiving ADT.

Table 1. Change in body composition at 24 months.

	Mean difference	Standard error	P-value	95% CI	
Mean change in lean mass percentage of body weight	-3.40	1.40	0.019	-6.10	-0.60
Mean change in fat mass percentage of body weight	1.70	1.30	0.19	-0.90	4.30
Mean change in appendicular lean mass percentage of body weight	-3.10	0.80	0.001	-4.70	-1.40
Mean change in lean mass per height square	-0.34	0.51	0.51	-1.36	0.69
Mean change in fat mass per height square	0.59	0.50	0.24	-0.42	1.60
Mean change in appendicular lean mass per height square	-0.52	0.26	0.05	-1.05	0.00
Mean change in lean mass	-2.78	1.59	0.09	-5.99	0.44
Mean change in fat mass	0.73	1.29	0.58	-1.89	3.35
Mean change in appendicular lean mass	-2.20	0.83	0.012	-3.88	-0.52

Figure 1. Changes in spine T-score over time for the two groups. Study ADT group, Control control group.

