Evaluation of the efficacy of a 6-month dietary and physical activity intervention for patients receiving androgen deprivation therapy for prostate cancer: extended analysis of a completed randomised controlled trial.

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Abstract

Background

Treatment of prostate cancer with androgen deprivation therapy (ADT) is associated with an increased fat mass, decreased lean mass, increased fatigue and a reduction in quality of life (QoL). There is also evidence to suggest an association between ADT and risk of developing cardiovascular disease, diabetes and metabolic syndrome.

Aims & Objectives

The aim of this study was to evaluate the efficacy of a 6-month dietary and physical activity intervention for prostate cancer patients receiving ADT, to help minimise the adverse body composition side effects of ADT.

The aim of the proposal to BRU it to utilise the blood samples collected at baseline and at 6 months to measure changes in important biological markers of cancer progression including adiponectin, leptin, TNF alpha, IGF and fatty acid synthase. Targeted metabolomics will also be utilised to examine changes in metabolites from baseline.

Method

Patients (n=94) were recruited to this study if they were planned to receive ADT for prostate cancer for at least 6 months. Men randomised to the intervention arm received a dietary and exercise intervention, commensurate with UK healthy eating and physical activity recommendations. The primary outcome of interest was body composition; secondary outcomes included fatigue, QoL, functional capacity, stress and dietary change.
Outcome measures

The intervention group had a significant (p<0.001) reduction in weight, body mass index and percentage fat mass compared to the control group at 6 months; the between-group differences were −3.3 kg (95 % confidence interval (95 % CI) −4.5, −2.1), −1.1 kg/m² (95 % CI −1.5, −0.7) and −2.1 % (95 % CI −2.8, −1.4), respectively, after adjustment for baseline values. The intervention resulted in improvements in functional capacity (p<0.001) and dietary intakes but did not significantly impact fatigue, QoL or stress scores at endpoint.

This proposal will evaluate the changes in important biomarkers related to prostate cancer progression as a result of a 6 month diet and physical activity intervention. In addition, although the original study was powered to examine changes in the primary outcome (i.e. body composition), this proposal will provide crucial information to calculate a sample size required to detect changes in biomarkers related to prostate cancer progression for a large grant application to NIHR in collaboration with Bristol BRU.