Abstract # 142

Risk assessed exercise and diet in prostate cancer survivors: consequences of cancer treatment on cardiopulmonary fitness and cardiovascular risk

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INTRODUCTION

Evidence from large observational studies suggest that men with prostate cancer have a higher risk of cardiovascular events due to accelerated atherosclerosis linked to Androgen Deprivation Therapy (ADT) (1). Adults > 70 years of age are known to have poorer outcomes from cancer treatment, possibly due to multi-morbidity and fitness (2). However, it is not yet clear what factors are contributing to the poorer outcomes amongst older men with prostate cancer. A growing body of evidence suggests that obesity is associated with an increased risk of advanced prostate cancer (3). Physical activity especially vigorous activity is inversely associated in men with prostate cancer to recurrence and overall mortality (4) but associations between obesity, physical activity and outcomes are unclear. Comorbidity affects cancer survivors not only in terms of quality of life but also in use of health care services and long term recovery (5). Survivorship and recovery programmes provide a unique opportunity to address potentially modifiable factors as part of rehabilitation and secondary prevention.

The PURPOSE of this study was to assess the health and fitness of a cohort of prostate cancer survivors, from 2 regions in the UK and identify factors that influenced cardiovascular health and fitness.

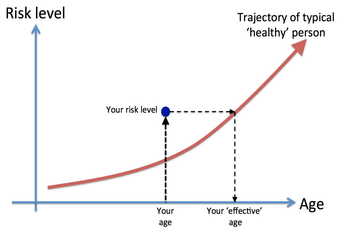


Figure 1. Generic interpretation of "effective age"

Our approach was based on assessing effective change i.e. defining an individual man's values compared to data values of those of a 'healthy' man who had the same risk profile. Figure 1. shows the trajectory of a typical 'healthy' person as they age and then the risk level is mapped across to provide an effective age which is higher or lower than norms.

METHOD

Men were recruited within 3-36 months of diagnosis for localised disease and 3 months after completion of prostate cancer treatment.

Men invited were those actively receiving ADT, diagnosed with hypertension and/ or had a BMI of 25 or above. They undertook a comprehensive health, fitness and strength assessment which was repeated 12 weeks later.

70% of eligible men invited by letter took up the invitation.

- Cardio Pulmonary Exercise Test (CPET),
- Siconolfi Step Test,
- Sit to Stand test, Grip Strength,
- BMI, Waist/Hip circumference,
- Blood Pressure (B/P)
- QRISK2 (cardio vascular risk assessment)
- *DINE, CHAMPS, GODIN questionnaires*
- *Qualitative interviews (20 men*) (*Results reported separately)*

Table 1. Age and treatment characteristics

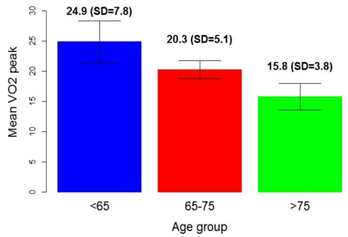
	<65	65-75	>75	Overall
Age	22	47	14	83
Surgery	17	33	3	53
Radiotherapy	3	12	10	25
Brachytherapy	1	2	0	3
ADT alone	2	3	3	8
ADT with txt	3	12	18	33
BMI *Mean(SD)*	29.8 (4.1)	28.5 (3.2)	29.1(2.7)	28.9 (3.4)
Godin *Mean(SD)*	40.7 (31)	23.7 (19.3)	16 (11.2)	26.3 (22.7)
b-index *Mean(SD)*	3.5 (2.1)	2.8 (1.7)	4.4 (2.2)	3.2 (2)

RESULTS

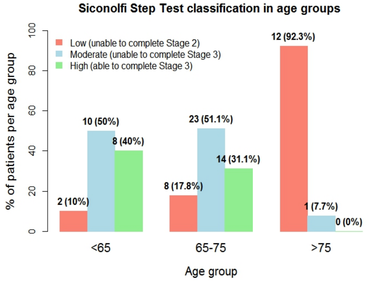
Fitness

Fitness was determined by VO^2 Peak and Siconofli Step Test. VO^2 Peak was significantly lower in older men (p<0.001) (Graph1). **Step test results (Graph 2) showed that 92% of men >75 years of age were less fit compared to age standardised reference values.**

Graph 1.



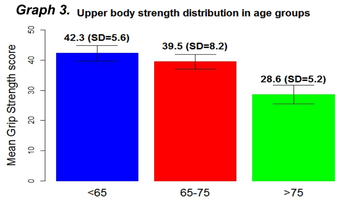
Graph 2.



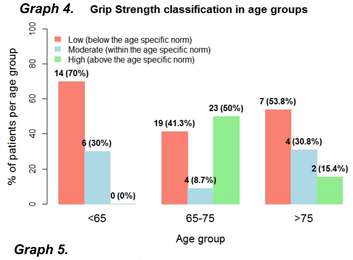
Strength

Older men in the study had worse grip strength (p<0.001) than younger men (Graph 3). **Overall men with PCa were less strong compared both in lower and upper body than age standardised reference values (Graph 4 & 5).**

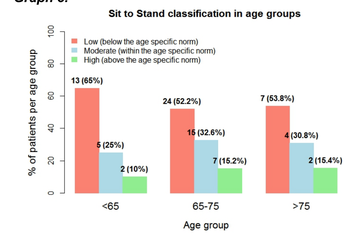
Graph 3. Upper body strength distribution in age groups



Graph 4. Grip Strength classification in age groups



Graph 5.

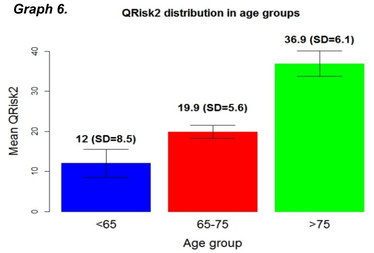


Cardio Vascular Disease risk (CVD)

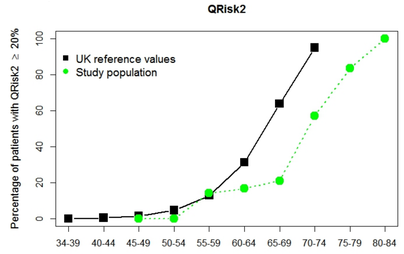
QRisk2 gave the predicted 10 year risk of a cardiovascular event of men in the study based on comparison with healthy individuals. **Men who were older than 75 had greater CVD risk than younger men (p<0.001).**

Compared to population reference values the men with PCa were no different to men drawn from the general population.

Graph 6.



Graph 7.



CONCLUSION

Men who were older than 75 had greater CVD risk. Although increased obesity across all groups, raised BMI and B/P all contributed to a potential risk of a cardiovascular event within 10 years.

Compared to the UK general population men in the study were not worse in CVD risk than men without prostate cancer suggesting these risk factors may have been pre existing.

Men's fitness was poor in the over 75 age group.

Physical fitness as measured by step test showed that older men performed worse than reference values.

Lower body strength was poorer in men with prostate cancer.

Muscle mass decreases as one ages but studies have shown that ADT reduces muscle in lower body more than upper body. A significant proportion of men over 75 were on ADT than younger men. This was reflected in our data. Poor lower body strength is linked to reduced functional ability. This data helped us develop an algorithm for exercise and dietary advice for prostate cancer survivors.

More comprehensive functional health assessment at point of treatment could help clinician's optimise therapy to reduce long term comorbidities in for survivorship.

Resources and links

http://prostatecanceruk.org/for-health-professionals/our-projects/truenth

References

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