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Editorial

The Role of Physical Exercise in Active Surveillance of Prostate Cancer Patients

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Active Surveillance (AS) is a disease management strategy for low-risk Prostate Cancer (PCa) [1] and is associated with comparable long-term disease-specific mortality relative to curative treatment (eg, surgery, radiation). [1] Men with localized PCa may prefer AS over curative treatment to avoid common unpleasant effects that negatively impact Quality of Life (QOL). Studies have shown that Physical Activity (PA) is associated with improved QOL and psychological well-being in men with PCa after curative treatment. Galvao and colleagues' cohort study of 463 men who underwent radical prostatectomy or radiation with or without androgen deprivation therapy showed that physically immobile men experienced greater global distress and poorer QOL relative to their more physically active corresponding persons. Data cannot conclusively determine whether PA affects clinical and non-clinical factors in men with low-risk disease, an area for future research. Research should be concerned with the exercise-related biological and psychological determinants that may influence the period of AS. Further, it has been found that men with prostate cancer on active surveillance can potentially benefit from a home based exercise program. Data suggest that a home-based exercise program can modulate inflammatory cytokines associated with tumor progression while also positively impacting physical function and quality of life. Though not significant, these findings may have clinical implications. Future studies are needed to confirm these findings [2].

Men on AS may experience improvements in their physical and mental health, reduce prostate cancer progression, feel more in control of their health and treatment, and may encourage adherence to AS and its protocols. [3] The primary findings of ERASE (Endovascular Revascularization And Supervised Exercise for claudication) trial highlight that High-Intensity Interval Training (HIIT) improved cardiorespiratory fitness and suppressed the biochemical progression of prostate cancer in men undergoing active surveillance. [4] Men with prostate cancer who are undergoing active surveillance are at an increased risk of cardiovascular death and disease progression. Exercise has been shown to improve cardiorespiratory fitness, physical functioning, body composition, fatigue, and quality of life during and after treatment. The ERASE trial demonstrated that HIIT increased cardiorespiratory fitness levels and decreased PSA levels, PSA velocity, and prostate cancer cell growth in men with localized prostate cancer who were under active surveillance.

Post-diagnosis PA influences PCa evolution. If confirmed by larger randomized controlled trials, adopting an active lifestyle may represent a valuable form of tertiary prevention, a low-cost and harmless intervention capable of deferring or even avoiding curative-treatment-related toxicity and morbidity [5] Early studies about the role of exercise in survivors of prostate cancer provide strong evidence that beneficial effects are derived during and/or following definitive therapy [6]. Moreover, if proven effective, exercise can be easily implemented as a component of clinical best practice at minimal costs and with an range of other positive physical, physiological, and/or psycho-social effects, including enhanced quality of life. This could result in a dramatic reduction in overtreatment of patients with prostate cancer, thus sparing the patient considerable suffering, physical pain and possibly extending survival

In vitro research suggests that the accumulation of changes in serum composition induced by repeated bouts of exercise could effectively inhibit tumor growth in various cancers, including prostate cancer. [7] Muscle-produced myokines could also manipulate adipocytes and reduce whole-body adiposity, thereby showing the potential to inhibit prostate cancer growth and invasion by interfering in the crosstalk between adipocytes and cancer cells via altering adipocyte secretomes. Exercise is a potentially promising adjunct therapy for men with PCa undergoing radiotherapy that may increase its effectiveness. However, exercise-induced tumor radiosensitization remains to be confirmed in preclinical and clinical trials, as does the optimal

exercise prescription to elicit such effects. [8] Exercise training counteracts the adverse effects of androgen deprivation therapy in men with prostate cancer. [9] To conclude one should remember that the capability of exercise as an anticancer treatment in prostate cancer is promising; however, further research is necessary.

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