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Promoting Healthy Lifestyles Among Older Cancer Survivors to Improve Health and Preserve Function

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Abstract

Currently, there are almost 7 million cancer survivors in this country who are age 65 years or older, and this number is expected to rapidly increase given trends toward aging and improvements in early detection and treatment. Unfortunately, cancer survivors are at risk for several comorbid conditions and accelerated functional decline. In a previous cross-sectional study among 688 older breast and prostate cancer survivors, we found significant associations between lifestyle practices and levels of physical functioning, with positive associations noted for physical activity, and fruit and vegetable consumption, and negative associations observed for dietary fat. In a more recent cross-sectional study among 753 older survivors of breast, prostate and colorectal cancer, we continued to observe significant associations between physical function, and physical activity ($p=0.22$, $p<0.0001$) and diet quality ($p=0.07$, $p=0.046$), and also found a significant negative association between physical function and body mass index ($\rho=-0.29$, $p<0.0001$). Therefore, speculation exists that lifestyle interventions may be helpful in positively reorienting the trajectory of functional decline in this vulnerable population; however, there are substantial barriers, such as travel, that must be overcome in delivering behavioral interventions to older cancer survivors. Previously reported results from our Pepper Center-funded Project LEAD (Leading the Way in Exercise and Diet) intervention development study, suggested that an exercise and diet intervention delivered via telephone counseling and mailed materials was readily accepted and appeared to be of benefit. Larger trials, such as Reach-out to ENhance Wellness in Older Survivors (RENEW) are currently underway and should soon yield results.

Keywords

aged; neoplasms; survivors; diet; exercise; function

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Introduction

Currently, there are roughly 11 million cancer survivors in the United States, and a clear majority are at least 65 years of age.¹ This population is slated to expand rapidly as increasing cure rates are superimposed upon ever increasing numbers of elderly at risk for cancer.²

While the victory of survivorship is well-recognized, the impact of cancer and its treatment is significant and associated with several long-term health and psychosocial sequelae.^{1–3} Compared to others, cancer survivors are at significantly greater risk for other cancers, cardiovascular disease, osteoporosis, diabetes, and accelerated functional decline.^{1–3} Previous studies suggest that diet and exercise interventions may be of benefit in ameliorating these adverse sequelae.^{3,4} Observational data from large cohort studies, and select cooperative trials for which data on lifestyle factors have been collected, suggest that cancer survivors by-in-large (not just those who are elderly), have significantly better cancer-specific survival, as well as overall survival if they are physically active and do not gain weight after diagnosis.^{5,6} Furthermore, recent results from the Women's Intervention Nutrition Study (WINS) (n=2,437) found significantly reduced hazards ratios in early-stage, newly-diagnosed post-menopausal breast cancer patients who were randomized to a low fat diet (less than 15% of energy from fat) compared to those who received counseling on a healthy, well-balanced diet.⁷ A reduction in breast cancer recurrence of 24% was observed among all women enrolled in this randomized controlled trial, and this effect was most pronounced (reduced by 42%) in patients characterized with estrogen receptor negative disease. These data, which suggest that lifestyle factors may be important in cancer control, are indeed exciting and hopefully will spur other research in this arena. However, among older cancer survivors the potential impact of exercise and diet interventions on other outcomes, such as functional status may be just as important.

Findings of Hewitt et al.⁸ (n=4,878) suggest that while older cancer survivors suffer losses in all eight functional domains, their losses are the most profound in the area of physical functioning. Cancer survivors have almost a two-fold increase in having at least one functional limitation, furthermore in the presence of another co-morbid condition the odds ratio increases to 5.06 (95% CI 4.47–5.72) and to 11.80 (95% CI 9.70–14.37) in the presence of more than one co-morbid factor.⁸ Given the high prevalence of multiple co-morbid conditions in the elderly, the additional losses in function manifest with a cancer diagnosis often endangers ability to maintain an independent lifestyle. Once independence is lost, health care costs escalate rapidly, and comprise a substantial proportion of the downstream costs associated with cancer – costs which recently were estimated at 190 billion dollars annually.⁹

In a cross-sectional study conducted among 688 older adults newly diagnosed with breast or prostate cancer, we found significant direct and independent associations between improved physical functioning and the self-reported practices of the following lifestyle behaviors: 1) vigorous physical activity; 2) increased fruit and vegetable consumption; and reduced dietary fat.¹⁰ These results coupled with the previous findings of others provided support for an intervention development study (Project Leading the Way in Exercise and Diet [LEAD]) which was undertaken as part of a Claude D. Pepper Older Americans Independence Center initiative.¹¹

Project LEAD

Project LEAD assessed functional status, lifestyle behaviors and other endpoints in 182 older breast and prostate cancer survivors who then received a 6-month intervention of mailed materials and telephone counseling (bimonthly) and were randomized to the

following arms: 1) improved exercise and diet quality; or 2) general health counseling.¹¹ At 6-month follow-up, we observed effect size differences between arms of the magnitude that was hypothesized for physical functioning and activity; however were underpowered to detect differences between arms since we were not able to achieve our targeted accrual of 420 with the resources available. A significant difference between arms, however was found for diet quality ($p=.0026$). Data collected after a 6-month washout, suggested substantial recidivism, thus calling for an intervention which was more intensive in terms of number of telephone contacts and materials, and which was delivered over a longer period of time.

Reach-Out to ENhance Wellness (RENEW) in Older Cancer Survivors

This preliminary study was used to support a full scale trial entitled, Reach-Out to ENhance Wellness (RENEW) in Older Cancer Survivors (R01 CA106919) which was funded under a Long-Term Cancer Survivorship RFA 04-003.^{12,13} For RENEW, we proposed a design which would: 1) target breast, prostate and colorectal cancer survivors, since these are the three major groups of cancer survivors; 2) enroll only those who were at least 5 years out from diagnosis, to be responsive to the RFA; 3) test an intervention which was more intensive and delivered over a longer treatment period, in hopes of improving durability; and 4) add a weight loss component, since in Project LEAD we found that 71% of participants were overweight or obese,¹¹ and results of Fine et al.¹⁴ suggested that modest weight loss improved physical functioning in older adults who were overweight or obese.

RENEW achieved its accrual target despite challenges in identifying long-term cancer survivors and engaging their interest in a lifestyle intervention trial. To illustrate this point, 39 letters of invitation were needed to accrue one analyzable study subject for RENEW, as compared to 11 for Project LEAD. Thus, the amount of resources needed to intervene in long-term survivors are substantial and suggest that interventions timed more proximal to diagnosis may be far less resource intensive and therefore able to benefit a greater proportion of survivors. Furthermore, interventions timed earlier in the course of survivorship may be better able to capitalize on the teachable moment afforded by a cancer diagnosis.⁴ Given repeated patient contact during the months following cancer diagnosis, oncology care providers may be optimally positioned to deliver messages and reinforce the need for healthy lifestyle behaviors. Indeed, in cross-sectional analyses from our baseline screening survey in RENEW ($n=753$), we found continued support for the relationship of exercise, diet quality and body weight status on physical functioning; Pearson correlation coefficients (p -values) were as follows for minutes of moderate-to-vigorous physical activity ($\rho = .22$, $p<.0001$); Health Eating Index ($\rho = .07$, $p=.046$); and body mass index ($\rho = -.29$, $p<.0001$).

Conclusion

Thus, in summary there is tremendous potential for exercise and diet interventions to improve the overall health and well-being of cancer survivors. Among older cancer survivors, particular benefits may be observed in the area of physical functioning. A need however exists to capitalize on opportunities that present themselves over the trajectory of cancer survivorship, and to merge the collective talents, knowledge and experience of researchers and cancer care providers to develop maximally effective interventions.

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