



Editorial

Qigong in the care of breast cancer survivors with diabetes



Introduction

Currently, there are 7.8 million breast cancer (BC) survivors worldwide.¹ Among BC survivors, diabetes (type 2) is a common comorbid condition with an estimated prevalence as high as 33%.² Independently, BC survivors and people with diabetes experience similar symptoms (fatigue, cognitive function, and depression).^{3,4} However, less is known about the symptom burden of BC survivors with diabetes. Recent studies have noted that BC survivors with diabetes report more fatigue and poorer cognitive function and unique symptom clusters compared to BC survivors without diabetes.^{5,6}

Breast cancer and diabetes both initiate systemic inflammation which may be further exacerbated when both diagnoses are experienced concurrently. Since the presence of inflammation is known to contribute to symptoms,^{7,8} it is plausible that BC survivors with diabetes may experience an exacerbation in symptoms. Interventions targeted towards decreasing the nefarious effects of inflammation may decrease symptom burden and should be considered when caring for BC survivors with diabetes. One treatment intervention that has shown promise in promoting health and improving patient outcomes independently for both BC survivors and people with diabetes is Qigong, a type of traditional Chinese medicine exercise.⁹

Qigong is a multi-component mind and body exercise. It consists of three core components: gentle movements, controlled deep breathing, and meditation. “Qi” means a vital energy of the body. According to the theory of traditional Chinese medicine, harmony in the flow of the “Qi” is believed to be the key to health and well-being. Qigong serves as a means for maintaining and restoring the balance of the “Qi” flow and emphasizes the cultivation of this vital energy to promote self-healing resulting in improved health.¹⁰ Studies have reported that the core components of Qigong exercise are associated with improved physical function, psychological health (e.g., decrease in depressive symptoms), spiritual well-being, and quality of life in diverse older adults.^{11–13} Current evidence suggests that Qigong exercise may be an additive approach to managing cancer-related symptoms such as fatigue, declining cognition,¹⁴ depression, and quality of life, and may provide BC survivors with a sense of well-being.^{15,16}

A recent quasi-experimental research study found that oxidative stress biomarkers (indicators of inflammation) decreased in participants who engaged in an 8-week Qigong exercise program.¹⁷ Oh and colleagues conducted a randomized controlled trial to assess the role of Qigong in inflammation in cancer survivors. They found that Qigong significantly decreased C-reactive protein (CRP) levels (a common biomarker of inflammation) in cancer survivors (32.4% were BC survivors).¹⁸ Researchers have noted that Qigong improved the blood glucose

status (fasting and random blood glucose and hemoglobin A1c) of people with type 2 diabetes.^{19,20} While the impact of Qigong on the symptoms of BC survivors with diabetes has not been investigated extensively, these studies indicate that Qigong could play a role in attenuating inflammation, potentially mitigating the symptoms experienced by BC survivors with diabetes.

Qigong and symptoms

Fatigue

Cancer-related fatigue is a common symptom experienced by BC survivors during and after cancer therapy treatment. Cancer-related fatigue and depression are highly correlated.²¹ Cancer-related fatigue is distressing and disproportionately interferes with daily activities, leading to poor quality of life.²² Even 10 years after diagnosis, 26.6% of BC survivors still report cancer-related fatigue.²³ Despite the profound impact of cancer-related fatigue, it remains a poorly managed problem for BC survivors.²⁴ Fatigue is also a frequent symptom experienced by as many as 68% of people with diabetes.²⁵ Higher self-reported symptoms of fatigue have been reported in BC survivors with diabetes compared to BC survivors without diabetes.^{5,6}

Qigong has been shown to be beneficial in reducing cancer-related fatigue among BC survivors. A study led by Brown University researchers found that a low-impact, meditative movement program involving Qigong was as effective as an intervention that included energy-intensive exercise and nutrition programs in improving cancer-related fatigue.²⁶ Participants in the Qigong group also reported significant improvements in mood, emotion regulation, and stress.²⁶ A meta-analysis, including 1253 patients with cancer, chronic fatigue syndrome, or other medical conditions, revealed that Qigong significantly decreased physical and mental fatigue.²⁷ Possible biological mechanisms for Qigong include a decrease in inflammatory cytokines¹⁸ and improved immune function.²⁸ To our knowledge, no studies have examined the impact of Qigong on cancer-related fatigue in BC survivors with diabetes.

Cognitive function

Declined cognitive function is prevalent among BC survivors and in people with diabetes.^{29–31} However, the impact of the combined comorbidities on cognitive function in BC survivors with diabetes has not been well studied. It is estimated that up to 18.6% of older BC survivors experience a mild to moderate decline in cognitive function,³² and 45% of people with diabetes report declined cognitive function.³³ In BC

survivors, declines in cognitive function may be related to the neurotoxic effects of cancer treatment and chemotherapy-induced accelerated aging process.^{34,35} Attention, processing speed, and executive function of the cognitive domains are most affected in older BC survivors receiving chemotherapy.³² In people with diabetes, cognitive function may be impacted by structural changes in the brain.³⁶ Although the etiologies of declined cognitive function may differ between breast cancer and diabetes, the combined effects of having both chronic conditions may result in more severe loss in cognitive function.

A meta-analysis of 40 randomized controlled trials revealed that Qigong had significant effects on processing speed and executive function for individuals with neurological disorders.³⁷ Qigong exercise also improves global cognition, short-term memory, and working memory,³⁸ and the meditation component of Qigong can improve attention.^{14,21,38} Qigong may be a better choice to improve cognitive function in older BC survivors, as it may enhance muscle strength and prevent physical inactivity resulting from chronic fatigue.^{12,22} It is worth noting that the length and frequency of the Qigong exercise program or duration of a Qigong exercise session matters to cognitive function/-performance improvement. It was suggested that the Qigong exercise program should be longer than 12 weeks (about 3 months) or take place 3 to 7 times weekly, and a Qigong exercise session should last 45–60 minutes.³⁸ This guidance is in line with findings from previous research.¹² There is a dearth of literature related to the effects of Qigong on cognitive function in BC survivors and/or people with diabetes; however, more research is warranted.

Depression

The prevalence rate of depression among breast cancer patients is noted as high as 30.2%.¹ Comorbidities such as diabetes are significantly associated with depression in BC survivors compared to survivors of other types of cancers.³⁹ BC survivors with diabetes are 26% more likely to report depression than BC survivors without diabetes.³⁹ Notably, depression in BC survivors is also correlated with declined cognitive function and cancer-related fatigue.^{22,32} More depressive symptoms are associated with poorer cognitive function and cancer-related fatigue intensity.³² Early detection and prevention of depression is vital for longer survival and better quality of life in BC survivors with or without diabetes.³⁹ Although pharmacological treatment with antidepressants appears to decrease depression, it does not improve the co-existing fatigue.⁴⁰

Exercise is well known to be beneficial to psychological health. Compared to other exercises, Qigong may be a superior option for BC survivors, with or without diabetes, to manage depression due to its potential to manage concurrent cancer-related fatigue and declined cognitive function. Those two symptoms are commonly experienced by BC survivors and impact their quality of life. Prior studies show that the emotional benefits (calming and relaxing feelings) of Qigong exercise contribute to decreased depression and stress while improving mental concentration.^{13,21} Study participants enjoyed practicing Qigong and indicated that its meditation and deep breathing components were especially helpful in moments of emotional unease.²¹ There are several possible biological mechanisms of Qigong's effect on emotions. First, research shows that meditation practice can mitigate an individual's habitual response to difficult situations, leading to better emotional regulation and calming and relaxing feelings.^{41–43} Second, deep, controlled breathing may benefit psychological health. Deep breathing may affect vagal activation of the gamma-aminobutyric acid (GABA) pathway from the prefrontal cortex and insula to inhibit amygdala overactivity, leading to positive emotional responses.⁴⁴ Third, practicing Qigong may activate the parasympathetic nervous system, resulting in emotional benefits such as alleviated depressive symptoms.⁴⁵ Finally, both meditation and Qigong group exercise may result in a sense of spiritual well-being that mediates the resilience of psychological health.^{13,21}

Conclusions

As advances in treatment have increased the lifespan for BC survivors and the prevalence of diabetes is expected to continue to rise, managing diabetes and other long-term comorbidities will become more important in the treatment plan of BC survivors. Qigong exercise is a better alternative to rigorous aerobic exercise for BC survivors with diabetes who experience cancer-related fatigue. Deep breathing and meditation benefit emotional regulation and cognitive function. BC survivors with diabetes commonly experience cancer-related fatigue, declined cognitive function, and depression which may be more severe when diagnosed concurrently. In addition, Qigong may facilitate better blood glucose management. Mitigating symptoms can improve the quality of life for BC survivors with diabetes. More studies are needed to investigate the effects of Qigong on the symptoms of BC survivors with diabetes to inform the development of tailored interventions.

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