

Evaluation of an integrated yoga intervention in modulating psychological stress and radiation induced genotoxic stress in breast cancer patients undergoing radiotherapy

By

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Abstract

Background

Stress in any form both psychological and physiological has been known to be associated with cancer from the time of diagnosis. Yoga is an ancient eastern system which is being extensively used in research worldwide to study the effects in reducing the stress at the psychological and physiological levels.

Aim

In the current study an attempt has been made to find the effects of an integrated yoga program in modulating the perceived stress levels, the anxiety as well as depression levels and radiation induced DNA damage in breast cancer patients undergoing radiotherapy

Method

A total of 78 patients were recruited and randomized in the study cohort. The Yoga group had n=35 patients and control group had n=23 patients with 20 drop outs. Two Psychological questionnaires (HADS and PSS) were taken pre and post radiotherapy. DNA damage was measured to find the effect of radiation on the peripheral blood lymphocytes (PBLs) of the patients both pre and post radiotherapy. The intervention group was given an integrated Yoga program which included guided relaxation, meditation, breathing practices, asanas and imageries with positive group practices for six weeks. The control group was given supportive counseling and waitlisted to be given yoga after the trial period.

Results

There was a significant decrease in the anxiety levels in yoga intervention group from Mean=8.5(baseline) to Mean=4.1 (48.2%) after the 6 weeks of yoga program, where as in the control group the Mean anxiety score increased to 10.5 (28%) $p < 0.001$ for ANCOVA. The post depression score for the intervention group decreased from Mean= 8.0(baseline) to Mean= 3.4(57.5%) where as the in the control group the score increased from 7.8(baseline) to 9.7(24%). In the yoga group the mean perceived stress score (PSS) decreased from 20.4(baseline) to 14.9 (26.9%) where as the control group showed no change in pre and post radiotherapy Mean= 19.0 and Mean=20.4. The DNA damage due to radiation was significantly high in both the yoga and control group after radiotherapy But the post radiotherapy DNA damage was slightly lesser Mean=24.3 when compared to the control group Mean=28.8. $p < 0.001$. The baseline DNA damage being 2.6 and 2.8 respectively.

Conclusion

In our study we found that the integrated Yoga program was effective in reducing the stress significantly at both physiological and psychological levels when compared to the supportive counseling.

Key words: Yoga, meditation, radiotherapy, stress, DNA damage.

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