A pilot randomized trial assessing the effects of autogenic training in early stage cancer patients in relation to psychological status and immune system responses

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Summary

Autogenic training (AT) is a type of meditation usually used for reducing stress. This pilot study describes how AT was used on a group of early stage cancer patients and the observed effect on stress-related behaviours and immune system responses.

This was a randomized trial with 31 early stage breast cancer women, having received a lumpectomy and adjuvant radiotherapy. The women were randomized into two groups. Group 1 received a home visit only. Group 2 received a home visit and 2 months’ weekly Autogenic training. At the beginning and end of the 2 monthly periods, the Hospital Anxiety and Depression Scale (HADS) and T and B cell markers were measured to give an indication of changes in immune system responses and measurement of anxiety and depression.

At the end of the study, HADS scores and T and B cell markers remained similar in the women who did not receive AT. The women receiving AT showed a strong statistical difference for an improvement in their HADS scores and those women observed in a meditative state as opposed to a relaxed state were found to have an increase in their immune responses. This study suggests AT as a powerful self-help therapy.
gemessen, um mögliche Veränderungen im Angst- und Depressionsniveau sowie im Immunsystem bestimmen zu können.


Die Studie lässt darauf schließen, dass Autogenes Training ein sehr wirksames Mittel der Selbsthilfetherapie ist.

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Introduction

The study was undertaken to investigate the benefits of teaching cancer patients Autogenic training observed by the first author in a previous Macmillan nurse post.

AT has been described as westernized meditation usually used for reducing stress. There is research on the effects of AT reducing stress in various studies (Kanji and Ernest, 2000; Mishima et al., 1999), but not with cancer patients. As a result of chronic stress, there is excess production of the hormone cortisol, which affects the immune system (Lengacher et al., 1998). AT reduces the fight and flight response of stress (Mishima et al., 1999). Emotional distress seems to be associated with cancer disease progression and similarly improvement in cancer disease progression has been observed using psychological intervention including imagery (Lengacher et al., 1998). In a study of breast cancer patients awaiting chemotherapy and surgery were randomized into control or experimental group using relaxation with imagery. Only those who showed ability to have imagery vividness had improvement in immune responses, these being higher numbers of activated T cells and reduced levels of tumour necrotic factor. (Walker et al., 1999).

Autogenic training

Autogenic means generated within. AT was first introduced by a German psychiatrist and neurologist, Johannes Schultz in the 1930s. He observed that hypnotized subjects reported physical sensations such as heavy limbs, improved health and reduced stress. Schulz theorized that by mentally connecting with parts of the body this would induce a psychophysiological state similar to the hypnotized state. This he demonstrated and lead to the development of mental exercises which link the mind with the body learned over 8–10 weeks (Kanji, 1997).

There are six standard mental exercises:

1. Heaviness of limbs.
2. Warmth of limbs.
3. Calm regular heart beat.
4. Easy breathing.
5. Abdominal warmth.
6. Cooling of the forehead.

These exercises allow the mind to calm and reduce sympathetic nervous system’s response to stress and enables ‘tapping’ into ones own inner healing (Kanji, 1997; Mishima et al., 1999). Shultz’s work was further developed by Dr. Wolfgang Luthe, who introduced the use of ‘intentional exercises’ to enable the individual to address unresolved past emotions (Kanji, 1997).

Biochemical stress increases blood pressure, heart rate, ventilation, fatty acid metabolism and decreases gastric motility. AT has been shown to be beneficial to a wide range of disorders such as high blood pressure, asthma, colitis, migraines and acute anxiety and sleep disturbances associated with stress. However, it is not necessary to be ill to benefit from AT and may be used to enhance wellbeing, improve work efficiency and release creativity (Carruthers, 1984).

AT has also been shown to benefit some patients with HIV; with reduction of symptoms, which suggests an improvement of the immune system responses (Kermani, 1987).

Methods

Research aims

The aim of the study was to provide the opportunity for early stage breast cancer patients to learn AT
and provide initial evidence of the beneficial effects of AT.

**Hypothesis**

Reduction of stress related behavioural reactions by the use of AT decreases anxiety and depression and affects the immune system by the increase of B and T blood cells to fight cancer.

The sample population comprised women having had early stage breast cancer (T1, T2, no nodes or metastases) between the ages of 16 and 65 recruited from the Trust database treated at the Derbyshire Royal Infirmary. The women identified had undergone lumpectomy, being more than 6 months post adjuvant radiotherapy and not about to undergo further treatment.

**Procedures**

Following permission from the local Ethics Committee, 31 women returned letter slips to an invitation letter as ‘interested’ and were visited in their own homes at the beginning of the study. During this meeting the researcher gave further verbal explanation regarding the study, explanation of the Hospital Anxiety and Depression Scale (HADS) along with blood forms and consent form. The groups were allocated to either active/experimental AT group or control group. An ethical dilemma was one that the control group would have no therapy, but these individuals were offered the opportunity to learn AT at the end of the study.

**Outcome measures**

Three outcomes were measured: anxiety and depression, immune responses and observation of AT patients for evidence of a meditative state.

These were measured using the HADS scale, T and B cell levels and the researcher's observation of individuals during classes for signs of meditation, these being altered facial features of the jaw line dropping and mouth open.

The HADS scale was devised to detect mood disorders of anxiety and depression in non-psychiatric patients in an outpatients setting. 14 items are measured with a possible score of 21 of both anxiety and depression. Below 7 being normal, 8–10 borderline and 11 and above being abnormal. It is a quick, reliable and sensitive scale and known to show a correlation between those patients having high levels of anxiety and depression (Zigmond and Snaith, 1983).

**Data analysis**

Patients were allocated to groups using block randomization with a block of 4. The groups were either AT experimental group or control group.

Statistical analysis was carried out between the experimental group and control group using unpaired t-tests. Calculations of blood results and HADS scores were made of mean and standard deviation (SD). Additional analysis was on the comparison of relaxed to meditative subjects within the experimental group.

**Results**

There appears to be a difference between the control and experimental groups in terms of mean reduction in anxiety and depression scores (Table 1). There is a strong statistical significance of a difference between these two groups with a P-value of 0.0027 for anxiety and 0.0001 for depression (Table 1). There is no statistical evidence of a
significant difference between the groups for any other variables. However, there were differences within the experimental group (Table 2). It was felt that only 7 out of the 16 patients in the experimental group achieved a meditative state. Further additional analysis was carried out to see if there was a difference within this group. There was no statistical difference in the HADS scores for the patients within the group. However the CD4 and B cell scores showed some statistical difference, with a strong statistical difference in the CD8 and the Natural Killer Cells. It should be noted that these results are based on a very small sample size.

Discussion

From the results of this study, it can be concluded that Autogenic training could reduce the women's experience of anxiety and depression following breast cancer. Various studies have shown stress reduction by the use of AT (Kanji and Ernest, 2000; Mishima et al., 1999) and in another study the main emphasis has been on accessing the affect of AT on stress related disorders such as hypertension (Carruthers, 1984).

This study differs from previous studies in the analysis of the affect of stress reduction by the use of AT on the immune system responses. AT may also benefit other patients where the immune system is compromised as with HIV patients (Kermani, 1987). Although there is no statistical difference of T and B cells between the two groups, on further additional analysis of the experimental group there was an improvement in the immune system of those observed meditative as opposed to those who merely relaxed. This is similar to those who showed ability to achieve a deeper level as in imagery (Walker et al., 1999). The AT group also reported other benefits. These included improved sleep patterns, reduction in hypertension and reduction in Tamoxifen related sweats, but these were not formally evaluated in this study.

There are trained AT practitioners throughout the UK and accessible to clients via the British Autogenic Society. A future benefit would be for practitioners to be available in all Cancer Centres. The researcher has taught 2 small groups of trained nurses and hopefully some will want to undergo the AT diploma training, but every client session is at least an hour and would necessitate negotiation of time with managers. AT has considerable potential and implication for practice for cancer patients and professionals as a powerful self-help tool to maintain health.

This pilot study was small and a much larger study is needed on a bigger population so the control group will stay as an exact control group without intervention and provide scientific proof to support the findings of this study on the use of AT for early stage cancer patients.

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References


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