USE OF AROMATHERAPY KIN THE RESUCTION OF STRESS LEVEL TO CANCER PATIENTS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Abstract— This study aimed to determine the effectiveness of using aromatherapy to cancer patients in the reduction of stress level. Specifically, it sought to answer the question:
"In cancer patients, (P) is the use of aromatherapy effective (I) as compared to NO aromatherapy (C) in the reduction of stress level (O)?"

The MEDLINE and Google search databases, PubMed and Ebsco Host were used as search methods. Keywords used in searching the articles were "cancer", "aromatherapy", "stress reduction", "anxiety level", "palliative care", and various combinations. Inclusion criteria are studies that are likely to be meaningful about aromatherapy in cancer patients. The priorities are RCTs. Meanwhile, exclusion criteria are studies with trivial, surrogate, and interim outcomes.

The articles were retained from hundreds of articles that were reviewed. The Jadad Scoring System for Randomized Controlled Studies was used to grade the 5 randomized controlled trials.

The Comprehensive Meta-Analysis (CMA) Software (version 3) was used to code the collected literature into effect sizes. The measures of treatment effects were evaluated with risk ratios and the estimation of 95% confidence interval in the final value of the outcomes between the use of aromatherapy and no aromatherapy in the reduction of stress level of cancer patients.

Results show that three out of the five studies fell to the left of the center (less than 1.0) indicating the benefit of aromatherapy. Based on the 95% confidence interval (CI) and the p-value, only one study did not cross the null (p-value of <.05) which is considered as statistically significant. The remaining four studies crossed the null (p-value >.05). On summary effect, one study favored the control group (i.e. non-use of aromatherapy) and another study had the same effect on both groups, the rest of the studies concurred that the use of aromatherapy was useful in the reduction of stress level as supported by the summary effect of 0.933.

Based on the results of this review, aromatherapy did not show any significant effect (p-Value=.335) in the reduction of stress level to cancer patients. Thus, aromatherapy did not appear to have substantial benefit on cancer patients in the reduction of anxiety and or distress.

Keywords— *palliative care, anxiety level, oncologic patients, complementary therapy, systematic review, meta-analysis, aromatherapy*

1 INTRODUCTION

CANCER is one of the major threats to public health in almost all parts of the world. Both developed and developing countries are affected and the number of people who may experience having this disease will still increase. According to the World Health Report (2004), in developed countries, cancer has become the second most common cause of death. Cancer accounted for 7.1 million deaths in 2003 and it is estimated the overall number of new cases will rise by 50% in the next 20 years.

It must be realized that individuals who encounter the disease are struggling with conflicting emotions as they try to endure not just the physical but also the emotional pain that sometimes takes control over their lives. Most oncologic patients manifest symptoms of pain, tiredness, nausea, anxiety, drowsiness, lack of appetite, shortness of breath, and most of the time depression. Thus, one of the greatest challenges in the nursing profession is to alleviate the sufferings like stress/ anxiety levels of patients diagnosed with cancer.

Cancer patients are increasingly turning to alternative and complementary therapies to reduce symptoms, improve quality of life and boost their ability to cope with stress and anxiety. Interest is growing in the use of complementary therapies as a means of improving patients' quality of life, both among the general public and healthcare professionals. Patients are increasingly requesting complementary therapies for mild chronic, musculoskeletal or stress-related problems. Cancer patients report that they seek such therapies to help reduce anxiety and stress, and to enhance hope. According to Wilkinson, et al. (1999), research suggests that more than half of cancer patients some time during the course of their illness resorts to complementary therapies. The most common of which is aromatherapy.

Aromatherapy is defined as the therapeutic use of plant-derived, aromatic essential oils to promote physical and psychological well-being. Aromatherapy is also used in combination with massage and other therapeutic techniques as part of holistic treatment approach (The Free Medical Dictionary). Furthermore, aromatherapy is found to appear and

deemed gaining acceptance in some hospitals and hospice environments as reflected to the continuously growing number of palliative care units and cancer centers which provides complementary therapies like aromatherapy (Wilkinson et al. 1999).

The perceived benefits of aromatherapy include a sense of social support, increased hope, improved quality of life, general reduction of anxiety and tension, improved sleep patterns and reduction in aches and pains. In addition, aromatherapy can induce feelings of being pampered, facilitate emotional release and provide uncritical caring touch (Wilkinson et al. 1999). Such findings led Kite et.al (1998) to conclude that aromatherapy has a role to play in the care of cancer patients at every stage of illness, particularly in the alleviation of stress, anxiety, fear and tension.

Unfortunately, further studies and surveys conducted by the researchers point out that while aromatherapy offers many advantages including the alleviation and control of pain brought about by serious illnesses, health care institutions still are not using aromatherapy as part of their care and intervention. It is not yet being put into practice in hospitals and clinics. These institutions yet need to increase their awareness of the role of aromatherapy in the mitigation of pain to improve quality of health in order to fully understand its health benefits. In addition, Wilkinson (2007) said that the use of aromatherapy still faced criticisms pointed out at research that evaluates the effectiveness of complementary therapies like aromatherapy.

OBJECTIVE: This study aimed to determine the effectiveness of using aromatherapy to cancer patients in the reduction of stress level.

Specifically, it sought to answer the question:

"In cancer patients, (P) is the use of aromatherapy effective (I) as compared to NO aromatherapy (C) in the reduction of stress level (O)?

P – Cancer patients

I – Use of aromatherapy

C – No aromatherapy

O – Reduction of stress level.

Search Methods of the study:

The MEDLINE and Google search databases, PubMed and Ebsco Host were used as search methods.

Keywords used in searching the articles were "cancer", "aromatherapy", "stress reduction", "anxiety level", "palliative care", and various combinations.

Inclusion and exclusion criteria: Inclusion criteria are studies that are likely to be meaningful about aromatherapy in cancer patients. The priorities are RCTs but qualitative research is also taken into consideration. Meanwhile, exclusion criteria are studies with trivial, surrogate, and interim outcomes.

REVIEW OF EVIDENCE:

Research studies matching search terms (273)
Research studies identified through alternate means (35)
Research studies rejected at the title stage (25)
Research studies rejected at the abstract stage (12)
Research studies retrieved and copied for review (6)
Research studies rejected at first reading (1)
Research studies to be scored (5)

SYNTHESIS and STRENGHT OF EVIDENCE

Evidences were gathered from articles that were searched and retrieved from different electronic bases. The articles were retained from hundreds of articles that were reviewed. The Jadad Scoring Sytem for Randomized Controlled Studies was used to grade the 5 randomized controlled trials.

Statistical Analysis

The Comprehensive Meta-Analysis (CMA) Software (version 3) was used to code the collected literature into effect sizes. The measures of treatment effects were evaluated with risk ratios and the estimation of 95% confidence interval in the final value of the outcomes between the use of aromatherapy and no aromatherapy in the reduction of stress level of cancer patients.

The figure 1 presents the forest plot of the 5 studies included in the review.

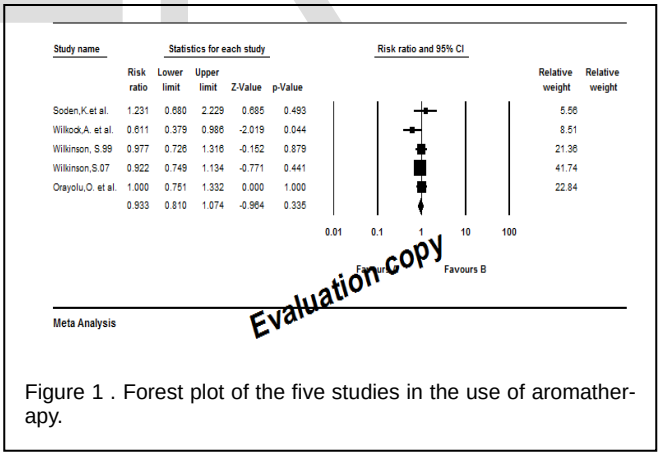

Figure 1 . Forest plot of the five studies in the use of aromatherapy.

RESULTS AND DISCUSSIONS

The researcher made use of the program CMA (Comprehensive Metaanalysis) for a convenient and accurate synthesis of data. These studies were sampled from a universe of possible studies defined by certain inclusion/exclusion rules as outlined in the full paper.

The analysis included five studies, each of which compared patients who were randomly assigned to either intervention group (A) or control group (B).

On Effect Size (Risk Ratio)

Based on figure 1, three of the five effect size estimates favor the intervention group (i.e. use of aromatherapy). However, the study of Soden, K. et al. favors the control group (i.e. non-use of aromatherapy), while the study of Orayolu, O. et al. is the same on both group which has a risk ratio of 1.0 representing no difference between groups.

The effect size for each study is represented by a square, with the location of the square representing both the direction and the magnitude of the effect. Based on the figure above, three out of the five studies falls to the left of the center (less than 1.0) indicating the benefit of aromatherapy. The effect is strongest (most distant from the center) in the study of Wilkock, A.et al.

On Precision and p-value

The effect size of each study is bounded by a confidence interval, reflecting the precision with which the effect size has been estimated in the study (Borenstein et al., 2009).

Based on the 95% confidence interval (CI) and the p-value, only the study of Wilock A. et al. did not cross the null (p-value of <.05) which is considered as statistically significant. The remaining four studies cross the null (p-value >.05).

From the five studies, the study of Wilkinson, S.99 has the smallest or narrowest confidence interval, and thus most précised.

On Study Weights

Based on the above figure, the solid squares that are used to depict each of the studies vary in size, with the size of each square reflecting the weight that is assigned to the corresponding study that was the basis of the summary effect (Borenstein et al., 2009). As shown in a shape of square, in the study of Wilkinson, S.07 has the highest number of sample size and thus it has the highest weight among the five studies. Meanwhile the study of Soden, K.et al. has the least study weight.

On summary effect

Despite of the study of Soden, K. et al. which favors the control group (i.e. non-use of aromatherapy) and Orayolu, O. et al. which is the same on both groups, the rest of the studies concurred that the use of aromatherapy is useful in the reduction of stress level as supported by the summary effect of 0.933.

CONCLUSION

Based on the results of this review, aromatherapy did not show any significant effect (p-Value=.335) in the reduction of stress level to cancer patients. Thus, aromatherapy did not appear to have substantial benefit on cancer patients' anxiety and/or distress.

IMPLICATION TO NURSING PRACTICE

Based on the findings, aromatherapy is not yet recommended as part of nursing intervention in the reduction of stress level among cancer patients. However, the nursing profession should be open to other alternative therapies as part of palliative care.

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