Noninvasive Interventions for Improving Well-Being and Quality of Life in Patients With Lung Cancer

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Objective

To assess the effectiveness of noninvasive interventions.

Type of Review

The review included 15 trials of randomized and quasi-randomized clinical trials assessing the effects of noninvasive interventions in improving well-being and quality of life in patients diagnosed with lung cancer. The participants (n = 1,587) were patients of either gender and any age diagnosed with lung cancer at any stage of their illness.

Types of interventions were defined as noninvasive intervention performed for the care of patients with lung cancer. Interventions were defined as any physical treatment that did not require catheterization, skin puncture, intubation, incision, drainage, endoscopy, or pharmacologic intervention. The care performed for patients with lung cancer was defined as any treatment or action, based on clinical judgment and knowledge, that healthcare professionals perform to enhance patient well-being or quality of life. The following types of interventions were included:

- **Well-being** was defined as a subjective or objective perception of improvement in physical health, or of symptoms related to cancer, to metastases, or to side effects of treatment of the illness; and/or a subjective or objective perception of improvement of physical functioning.

- **Quality of life** was defined as an individual’s perception of position in life in the context of the culture and value systems in which he or she lives and in relation to goals, expectations, standards, and concerns.

The main limitations of the studies included were the variability of the interventions assessed and the approaches to measuring the considered outcomes, and the lack of data reported in the trials regarding allocation of patients to treatment groups and blinding.

Relevance for Nursing

Despite advances in treatment, the outlook for the majority of patients with lung cancer remains grim and most face a pessimistic future accompanied by sometimes devastating effects on emotional and psychological health. Although chemotherapy is accepted as an effective treatment for advanced lung cancer, the high prevalence of treatment-related side effects, as well as the symptoms of disease progression, highlight the need for high-quality palliative and supportive care to minimize symptom distress and promote quality of life.

Characteristics of the Evidence

The 15 trials included in this review were categorized into 6 groups according to their interventions.

Three studies assessed the nursing interventions to manage breathlessness and focused on the nonpharmacologic management of breathlessness in 165 patients with lung cancer. One study looked at patients who had completed chemotherapy or radiotherapy treatment and randomized them to receive a nonpharmacologic intervention to ameliorate breathlessness or to a control group that received accurate assessment of symptoms but no intervention. The other study assessed a breathlessness training intervention over 12 months. The trial compared three versus a single session provided by a specialist physiotherapist or by trained nurse specialist. The third study randomized 109 patients, who had completed treatment and were experiencing breathlessness, to receive dyspnoea management intervention or standard care.

Four studies assessed the effects of general nursing programs and assessment among 556 patients with lung cancer on a variety of outcomes, including symptomatology, psychosocial well-being, quality of life and patient satisfaction, anxiety, depression, and symptom palliation.

One study assessed nutritional interventions aimed to increase oral nutritional intake on weight, response to therapy, survival, and quality of life in 96 patients with lung cancer. Patients were randomized to receive (a) nutritional advice intervention mainly consisting of oral nutrition supplementation (standard); (b) a nutritional intervention aimed to increase patients’ dietary intake of protein so that 25% of the total caloric intake was from protein sources; or (c) no specific nutritional intervention or counseling and follow an ad lib diet.

Three studies assessed the psychotherapeutic, psychosocial, and educational interventions among 522 patients with lung cancer. One randomized trial assessed the effects of counseling on patients with...
lung cancer. Another study assessed an intervention aimed at caregivers of patients with lung cancer and their coping skills with the illness. The intervention group received telephone-based sessions or a training program of education and support. That was compared to a group that received basic information only. The third study assessed a sensory self-monitoring and reporting coaching intervention allowing the patient to self-monitor and report changes in pain perception to providers. That was compared to a group that did not receive the intervention.

Two studies assessed exercise among 157 patients with lung cancer. One study sought to evaluate whether a preoperative physical exercise program would improve perceptions of hope and received self-power. First, it assessed whether hope differs over time in patients with lung cancer who did or did not participate in a preoperative exercise program, whether power differs over time in patients with lung cancer who did or did not participate in a preoperative exercise program, and what relationship existed between hope and power in patients with lung cancer who did or did not participate in a preoperative exercise program. The other study compared an early exercise intervention from postoperative day one to day five to usual care.

Two studies assessed reflexology in 96 patients with lung cancer. In one crossover trial, patients only entered if they reported anxiety and served as their own controls. The other study assessed partner-delivered foot reflexology and assessed the effects on the patients’ perceived pain and anxiety.

**Summary of Key Evidence**

**Managing Breathlessness**

One study showed significant differences between groups for distress caused by breathlessness, difficulty in performing activities of daily living, and anxiety, with the intervention group scoring higher for each variable. The other study showed no differences in baseline demographics, diagnosis, or outcome measures between the groups, yet the study did find favorable effect of the intervention on the levels of dyspnea and in the levels of distress caused by this symptom. In the final study, patients in the three-session group appeared to cope better than those in the single-session group regarding breathlessness severity, ability to cope with the breathlessness, satisfaction with care, quality of life, and possible distress.

**Nursing Programs**

Two of the four studies demonstrated statistical significance in the intervention groups regarding symptom distress. Patients in the control groups who received standard care had increasing symptom distress. One study showed no difference, and the other did not provide any data.

**Nutritional Requirements**

Although the patients’ caloric intake was increased, it had limited effect on weight. No significance existed between the groups, and counseling had no effect on the total intake consumed as protein.

**Psychotherapeutic, Psychosocial, and Educational Interventions**

At three months, one study demonstrated that counseling made a significant difference on patients’ quality of life. In another study, coaching patients about pain communication did not have an effect on improving adequacy of analgesics for pain control. In the last study, patients and their caregivers demonstrated improvements in quality of life through the telephone-based sessions.

**Exercise**

In these studies, although a significant difference was identified in muscle power and exercise tolerance in the intervention group, no significant difference existed in the groups with relation to hope and power.

**Reflexology**

A significant difference was found in the reflexology group compared to the control group regarding anxiety levels.

**Practice Recommendations**

The studies of breathlessness management indicate that nurse-led breathing programs may produce beneficial effects and as such should be encouraged. The studies of nurse follow-up suggest that it can be effective and leads to greater patient satisfaction than physician follow-up.

The study of a psychotherapeutic intervention indicates that counseling may be effective in helping patients cope more effectively with the emotional symptoms associated with their disease, but the most appropriate way of delivering this remains unclear. No evidence suggests that increasing oral nutritional intake in patients with lung cancer has any beneficial effects on quality of life or survival.

The findings from these studies imply a need for increased training, education of nurses in different supportive counseling techniques, and sufficient resources to allow these services to complement rather than replace conventional medical interventions.

**Research Recommendations**

Research is needed to understand the potential underlying mechanisms that may link the effects of psychological and emotional symptoms to physical symptoms. Researchers need to explore and test the effectiveness and feasibility of providing noninvasive interventions to patients with lung cancer within the real-life setting as opposed to the sometimes artificial setting of a research study.

Further research is needed to advance knowledge about nutritional interventions, as evidence currently is insufficient.

Qualitative research is needed to further advance knowledge and understanding of the experience of patients with cancer, in general, and patients with lung cancer, in particular, to look at possible ways to improve patient care.

Studies in this area need to be of higher quality design. Many of the interventions tested in the trials included in this review had a number of different components, any one or combination of which may or may not have produced a positive or negative effect.

**Bibliography**


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