

A Short Review: Complementary and Alternative Medicine in Lung Cancer

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Abstract

Complementary and alternative medicine (CAM) is a growing field that has started to integrate itself into the management of many diseases and disorders, including cancer. As more patients continue to incorporate the use of CAM into their treatment plans, it is important to understand the mechanism and clinical effectiveness of CAM. This review focuses on the role of CAM in lung cancer, including the available research trials that have focused on evaluating symptom control, quality of life, and survival rates in lung cancer patients. We have also reviewed the potential risks and benefits of several CAM medications as well as the future direction of this field.

Keywords: Herbal; Complementary; Alternative; Lung Cancer; Chemotherapy

Introduction

Throughout the history of medicine, complementary and alternative medicine (CAM) has played a significant role in the treatment of cancer patients. In 1999, the National Institutes of Health (NIH) created the National Center for Complementary and Alternative Medicine (NCCAM) in recognition of this growing field. Research funding to the NCCAM has risen from \$ 2 million in 1992 to \$50 million by 2000 and is expected to be more than \$110 million by the mid-2000's [1]. A survey conducted in 2005 indicated that approximately 35.9% of cancer patients attempted use of CAM during their treatment course [2]. In fact, that percentage may be even higher as studies have shown that many patients do not disclose the use of CAM therapy unless asked specifically [3]. Physicians poorly communicate with their patients regarding the potential benefits or harms of CAM because they have minimal understanding of CAM therapy and its physiological role in managing diseases [4,5]. Patients are often dissatisfied with their physicians' lack of knowledge regarding CAM therapy [6]. Patients who have a history of incorporating CAM into their management plan are generally driven by personal beliefs and principles regarding life and health [7]. An increased use of CAM has been seen in patients with increased psychosocial stress or poor prognosis at initial diagnosis [8,9]. Additionally, females and younger patients have a higher predilection for using CAM therapy [10]. There are numerous modalities of CAM such as spiritual healing or prayer, herbal medicine, and chiropractics [11]. This review focuses on medicinal therapies used as CAM for patients suffering from malignancy, specifically lung cancer.

Methods

A detailed search was performed on PubMed using the following terms: "lung cancer" and "herbal therapy", "complementary and alternative medicine", "CAM" AND "malignancy", "CAM" AND "lung cancer", and "CAM" AND "chemotherapy". Relevant clinical

trials were included. The bibliographies of these and other review articles were reviewed in order to identify additional relevant material.

CAM in Lung Cancer

CAM specific to lung cancer has focused on therapeutic options that may have less systemic toxicity compared to current chemotherapy options such as Gemcitabine, Paclitaxel, and Etoposide. Herbal plants that have been used in lung cancer therapy include *Platycodon grandiflorum* (Campanulaceae), *Morus alba* (Moraceae), *Prunus armeniaca* (Rosaceae), *Rhus verniciflua* (Anacardiaceae), *Perilla frutescens* (Labiatae), *Stemona japonica* (Stemonaceae), *Tusilago farfara* (Compositae), and *Draba nemorosa* (Brassicaceae) [12]. Although these are used as alternative modes of therapy, it is more common for herbal remedies to be used as adjuvant modalities with chemotherapy [13]. The role of these herbal therapies is multifactorial. They can be used to reduce chemotherapy-induced toxicity, mitigate cancer-related symptoms, or directly increase anti-cancer effects [14]. A randomized control trial (RCT) of 61 patients evaluated the use of herbal medications as adjuvant therapy and showed an enhancement in median survival in the group that was treated with Sheng-mai and Gu- jin Granule along with Navelbine and Cisplatin [15]. This group had a 48.5% increase in survival compared to 32.2% in the control arm that only received the two chemotherapy drugs. Another study enrolled 232 non-small cell lung cancer patients and showed that Shenqi-fuzheng, an herbal injection similar to Sheng-mai, served as a useful adjuvant to chemotherapy by improving quality of life [16]. Similarly another RCT of 121 patients with advanced non-small cell lung cancer showed improved quality of life and a trend towards increase in survival time in patients assigned to Kangliuzengxiao and Feiyanning in addition to chemotherapy [17]. Fiji Recipe therapy has been shown to alleviate chemotherapy side effects and enhance therapeutic efficacy [18]. Similarly, other studies have demonstrated the benefits of CAM therapy in mitigating the adverse effects of chemotherapy, including myalgia and diarrhea [19,20]. A case report showed regression of small cell lung cancer with the use of Chinese herbal medicines [21]. Lastly, another case report

showed that herbal remedies decrease tumor marker levels in lung cancer [22].

Discussion

In the last few years there has been more research devoted to CAM. However, there still remain many obstacles for CAM to be integrated into cancer treatment, especially lung cancer. The lack of resources (plants) to produce these herbal remedies could result in inadequate supply for the potentially high demand. The technology required for plant extraction and mixture preparation is another hurdle in establishing an adequate supply. Another obstacle is the lack of

understanding of the amount of herbal medication needed for monotherapy or adjuvant therapy. What dose is safe? What dose could interact with other chemotherapy drugs? In 2008, a study showed adverse drug interactions when a mixture of herbal medications including Ginseng and Fomesfomentarius were used with Gefitinib [23]. While CAM provides potential treatment options, there is much to be understood. It will be important to incorporate CAM into larger trials to measure its effect on survival, safety, and quality of life. In a medical world that continues to strive towards understanding how therapies work it is important to study the mechanisms and signaling pathways regulated by CAM in bench research and preclinical animal studies.

| Study | Medication | Study Design | Sample Size | Control (Chemo therapy alone) | Results |
|--|------------------------------|--------------------------|-------------|--|---|
| Chen YZ, Li ZD, Gao F, Zhang Y, Sun H, et al. [15] | Sheng-mai, Gu-jin Granule | Randomized control study | n=61 | Navelbine plus cisplatin | 48.5% survival rate compared to 32.2% survival in control subjects |
| Lin H, Li DR [16] | Shenqi-Fuzheng | Randomized control study | n=232 | Navelbine plus cisplatin or paclitaxel plus cisplatin | Improved quality of life* in experimental arm |
| Xu ZY, Jin CJ, Zhou CC, Wang ZQ, Zhou WD, et al. [17] | Kangliuzeng xiao, Feiyanning | Randomized control study | n=121 | Navelbine plus cisplatin | Improved quality of life** and a trend toward prolonged survival time in experimental arm |
| Tian JH, Liu LS, Shi ZM, Zhou ZY, Wang L [18] | Fiji Recipe | Randomized control study | n=70 | Vinorelbine plus cisplatin or gemcitabine plus cisplatin | Improved quality of life* in regards to side effects of chemotherapy in experimental arm |
| Yamamoto K, Hoshiai H, Noda K [19] | Shakuyaku-kanzo-to | Randomized control study | n=10 | Paclitaxel plus carboplatin | Decreased adverse effects of chemotherapy- induced myalgia |
| Mori K, Kondo T, Kamiyama Y, Kano Y, Tominaga K [20] | Hangeshash in-to | Randomized control study | n=44 | Cisplatin plus irinotecan | Decreased adverse effects of chemotherapy- induced diarrhea |
| *As assessed by quality of life scale of European Organization for Research on treatment of Cancer | | | | | |
| **As assessed by the Karnofsky score | | | | | |

Table 1: List of CAM Therapies Evaluated in Clinical Trials as adjuvant to chemotherapy.

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