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A STUDY OF THE SAFETY AND EFFECTIVENESS OF BOTANICAL MEDICINE IN THE TREATMENT OF CANCER

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ABSTRACT

It is believed that more than half of all cancer patients seek out complementary and alternative treatment, particularly herbal medicine. We performed a thorough review to determine the safety and effectiveness of herbal medications widely taken by patients in the hopes of preventing cancer, treating cancer, and treating side effects associated with conventional cancer therapies. Current evidence suggests that eating Asian ginseng, garlic, green tea, tomatoes, and soy as part of a healthy diet may help prevent cancer; more research is needed to determine the efficacy of essiac, evening primrose oil, mistletoe, reishi, shiitake, and turmeric as cancer treatments; and ginger may help with chemo-therapy-induced nausea and vomiting.

KEYWORDS: *Alternative Medicine, Botanical Medicine, Cancer, Herbal Medicine, Natural Health Products.*

1. INTRODUCTION

According to many studies, cancer patients and those trying to avoid the illness are looking towards complementary and alternative therapy (CAM). Due to ease consumer availability, consumers' desire in playing active self-care roles, and claims of potential chemo preventive benefits indicated in certain in vitro and in vivo research, herbal medicines seem to be a popular CAM modality. Although some clinically-based evidence on the safety and effectiveness of herbs in cancer management exists, it is frequently difficult to locate and summarize this information in a way that is helpful for patient and clinician decision-making(1–4). This review summarizes the evidence for the safety and efficacy of commonly used herbal products that claim to prevent cancer, treat cancer, or mitigate the side effects of conventional cancer treatments, and it serves as a useful tool for clinicians and patients making decisions about the use of herbal medicines in cancer management. The most frequently utilized herbal medicines to prevent or treat cancer or to reduce the harmful effects of conventional cancer therapies were identified by reviewing surveys reporting CAM usage by cancer patients. Ginseng, essiac, evening primrose oil, garlic, ginger, green tea, mistletoe, reishi, shiitake, soy, tomatoes (lycopene), and turmeric were discovered to be among them(5–8).

Separate searches were performed for each plant, restricting results to those accessible in English and using the mesh headings ‘cancer' or ‘neoplasm', as well as the herb's common name and/or Latin binomial when appropriate. Only trials that used entire herbs or herbal extracts (not isolated chemicals) to prevent cancer, cure cancer, or alleviate the side effects of conventional

cancer therapy were chosen. Additional studies were hand-searched in all reference lists(9). Our criteria were fulfilled by 148 research in total. Unpublished reports and uncontrolled, open-label, non-peer-reviewed research provide inconsistent outcomes. Some say that patients who took essiac were completely or partially cured, however it's unclear how these results were assessed or how the cancer diagnosis was verified(10). Others claim that orally given essiac had no clinical effect for cancer patients in terms of survival or tumor shrinkage, but that there were subjective improvements in symptom management and well-being(11). The Canadian Department of National Health and Welfare examined data from doctors overseeing the treatment of essiac patients between 1978 and 1982 in the early 1980s. Although 150 doctors got supplies of essiac for individual patients, only 86 case histories from 74 physicians were provided, and the findings were not officially published. As a result, this review is not a genuine case study. Essiac was shown to be ineffective in 47 individuals(12–14). 17 patients died, 8 patients were un- evaluable based on the information given, one patient showed subjective improvement, 5 patients needed less analgesics, 4 patients exhibited objective responses, and 4 patients were stable in terms of disease progression(15). Follow-up in 1982 showed that two of the eight who seemed to react (based on physician perceptions) or stayed stable had died, three had advanced, and three had remained stable, which was ascribed to various kinds of therapy. Finally, between June 1998 and August 1999, a Canadian manufacturer of essiac performed a customer study. There were a total of 3749 cancer patients identified, with 1588 completing the cancer-specific survey. Overall, 50.3 percent (584 of 1162) of those who used the tonic reported symptom-specific improvements, such as reduced tiredness, improved appetite, alleviation of nausea, pain, vomiting, and other effects(16). The tonic was taken by the majority of patients (84.9%) because they thought it would benefit them, thus there is a chance of a placebo effect.

Although Essiac is usually well tolerated and safe (except when injected), allergic responses to its constituents are possible. Specific components of essiac may raise the risk of colon cancer and induce hypokalemia, hypertension, and kidney impairment in theory, but it's unclear if these are clinically relevant issues. According to a post-marketing study, 103 of 1560 patients (6.6 percent) experienced side effects, the most of which were gastrointestinal (GI). Increased bowel motions, frequent urination, swollen glands, skin blemishes, flu-like symptoms, or mild headaches, according to Flor-Essence manufacturers, as well as nausea, vomiting, and diarrhea. (Evening primrose seed oil, as a source of GLA 60 mg) was given at a dosage of 36 500 mg capsules per day to patients (n = 62) with primary liver cancer in the first double-blind, placebo-controlled study. In terms of subjective improvement or survival time, there were no significant differences between the two groups(17–19).

The second case-control study looked at 50 patients with various cancer diagnoses who were given up to 3000 mg of GLA (in its natural form of evening primrose oil, at a dose of 33 ml of 10% GLA-containing evening primrose oil delivering 1004 kJ) or a 1000 kJ/day food supplement lacking GLA while receiving palliative radiotherapy/chemotherapy. The generated survival curves revealed a clear survival advantage for the GLA group, with a statistically significant difference in survival between the two groups. In none of the trials mentioned above, there were no documented side effects. Evening primrose oil, on the other hand, has been linked to gastrointestinal issues and headaches. Anti-inflammatory medications, corticosteroids, -blockers, antipsychotics, and anticoagulants may theoretically interact with it. Concurrent usage

with epileptogenic drugs like phenothiazine's may further enhance the risk of seizures. Evening primrose oil's safety during pregnancy and breastfeeding has yet to be determined(8).

Six investigations, including five case-control studies and one prospective cohort research, found that garlic consumption was linked to substantial, dose-dependent decreases in the risk of malignancies such as colorectal cancer, prostate cancer, and stomach cancer. With consumption frequencies ranging from once a month to two or more times per week, significant findings (ORs) were obtained, with ORs ranging from 0.10 (95 percent CI = 0.05 – 0.20) to 0.65 (95 percent CI = 0.44 – 0.97). Eight case-control and cohort studies, on the other hand, found no substantial reduction in the incidence of malignancies of the gastrointestinal tract, lung, or breast. In a single open-label, uncontrolled trial, nine patients were given 1 ml/kg weight of aqueous garlic extract for one month as a therapy for prostate cancer. A plant or plant component utilized for its fragrance, taste, or medicinal qualities is known as herb. One kind of dietary supplement is herbal medicine. Tablets, capsules, powders, teas, extracts, and fresh or dried plants are all available. Herbal medications are used by people to attempt to maintain or enhance their health. Many individuals think that "natural" goods are always safe and beneficial to them. This isn't always the case. Herbal medications are not subjected to the same rigorous testing as pharmaceuticals. Some plants, including comfrey and ephedra, may be dangerous. Some plants have the potential to interact with prescription and over-the-counter drugs. If you're considering taking herbal medication, make sure you obtain the facts from reputable sources first. Make sure to inform your doctor about any herbal medications you're using(2,20,21).

2. DISCUSSION

The total and free PSA levels tested after extract intake were substantially lower, according to the scientists. The prostate bulk, on the other hand, remained unchanged. Garlic has been linked to a variety of symptoms, including breath and body odor, allergic responses, nausea, heartburn, flatulence, dizziness, and migraines, as well as heartburn and stomach pains. It has the potential to improve the hypoglycemic effects of antidiabetic medicines by increasing the impact of anticoagulants/antiplatelet therapies or NSAIDs. Garlic also has antioxidant qualities, raising concerns regarding its safety when used in conjunction with certain traditional chemotherapy and radiation regimens. In this area, further study is required. Two clinical studies were found in our literature search that demonstrated the antiemetic benefits of ginger (Zingiber officinale Roscoe) in alleviating the side effects of conventional chemotherapy drugs. Individuals with leukemia were given encapsulated ginger (dosage not specified) (n = 20) or placebo (n = 21) with Compazine injection during a 2-day period in the first double-blind, randomized pair, placebo-controlled trial. The ginger group stated that their nausea was less severe and lasted longer. However, there were no significant differences between the two groups in terms of vomiting intensity, frequency, or length, or comfort level.

There were no statistical analysis or particular values provided. Patients taking cyclophosphamide in conjunction with other chemotherapeutic drugs and who had at least two bouts of vomiting in the preceding cycle were included in the second randomized, crossover, double-blind trial. Participants were assigned to one of three antiemetic medications in the first cycle: ginger, metoclopramide, or ondansetron, and then switched to the other antiemetic therapies in the second and third rounds of chemotherapy. Complete nausea control was achieved in 62 percent of patients on ginger (compared to 58 and 86 percent on metoclopramide and

ondasetron, respectively), and complete vomiting control was achieved in 68 percent of patients on ginger (compared to 58 and 86 percent on metoclopramide and ondasetron, respectively) (compared to 64 and 86 percent on metoclopramide and ondasetron, respectively). The researchers discovered that powdered ginger root was helpful in decreasing nausea and vomiting, and that its antiemetic effectiveness was comparable to that of metoclopramide, but that ondasetron was superior to both. Both trials found no substantial negative effects associated with ginger; nevertheless, ginger has been linked to heartburn and dyspepsia.

Ginger has the potential to enhance the effects of barbiturates and anticoagulants, as well as interact with cardiac and anti-diabetic medication. Although a clinical study revealed no scientific or medical evidence for ginger's contraindication during breastfeeding, its safety has not been proven. Our search of the literature turned up three epidemiological studies on the effects of dietary ginseng P (annex ginseng CA Meyer) consumption on cancer prevention, all of which found a 50% reduction in cancer risk (of various types) among ginseng consumers compared to non-consumers, as well as a significant dose-dependent relationship between increased ginseng consumption and increased cancer risk. Fresh ginseng extract, red ginseng, white ginseng extract or powder, and various combinations of these ginseng preparations were all linked to a lower risk of cancer. Colorectal cancer, GI tract cancer, lung cancer, ovary cancer, and pancreatic cancer all had significant decreases in risk, with ORs ranging from 0.20 to 0.55 (95 percent CI = 0.09 – 0.38 and 0.38 – 0.79, respectively). Breast, thyroid, urinary bladder, and uterine cervix cancers were not shown to have any link. Insomnia, diarrhoea, vaginal bleeding, mastalgia, increased libido, manic episodes, and perhaps aggravate Stevens–Johnson syndrome have all been linked to ginseng. It also seems to interact with MAO inhibitors, may enhance the effects of hypoglycemic, and may reduce the effects of warfarin. Ginseng's safety during pregnancy and breastfeeding has yet to be determined. In a retrospective cohort study, breast cancer patients who received Eurixor while undergoing tumor-destructive treatments had substantially lower symptom ratings and a longer mean time to relapse than the control group. The administration of mistletoe did not seem to be linked to improved survival or metastasis-free interval.

Patients with breast cancer, ovarian cancer, and non-small cell lung cancer were given Helix or at increasing dosages, ranging from 1 to 200 mg, in combination with traditional cancer therapies in another open-label, randomized, controlled study. Adverse events were observed to be less common in the mistletoe group than in the control group, and patients receiving mistletoe had substantially better quality of life. There have also been reports of bradycardia, dehydration, delirium, diarrhoea, gastroenteritis, hallucinations, hepatitis, hypo- and hypertension, leukocytosis, mydriasis, mycosis, nausea, seizures, vomiting, and many deaths. Mistletoe may enhance the effects of antihypertensive medications, cardiac depressants, and CNS depressants, according to theory. It is unknown if mistletoe is safe to use during pregnancy and breastfeeding. Reishi has the potential to induce respiratory allergic responses, as well as dry mouth, throat, and nasal passages, bloody diarrhea, nose bleeding, upset stomach, epistaxis, and itchy skin, according to anecdotal/historical data. Antibiotics, anticoagulants, anti-hypertensive, antioxidants, cholesterol-lowering medicine, hypoglycemic treatment, immune suppressive, sedatives, and stimulants are all possible interactions. Rishi’s safety during pregnancy and breast-feeding has yet to be determined. Clinical studies investigating the use of soy in the prevention and treatment of different malignancies were found in our literature search.

Overall, soy seems to protect against a range of malignancies; however, the data for any particular dosage or cancer type is not conclusive. There were no significant differences between baseline and post-treatment serum values of free testosterone or total PSA levels in either group after 12 weeks of therapy. However, 61 and 69 percent of subjects in the treatment group had a reduction or no change in serum-free testosterone and serum total PSA, respectively, compared to 33 and 55 percent in the placebo group, and 19 percent of the participants had a total PSA reduction of two points or more during the intervention period(19). Turmeric is usually considered safe, but it has been known to cause minor GI discomfort and mild dermatological responses in some people who have used it for a long time. There are no known medication interactions, but additional antiplatelet activity is a potential. It should not be used by those who have gallstones or a blockage in the common bile duct. Although safety in pregnancy and breastfeeding has not been proven, turmeric may function as a menstruation stimulant, therefore care is recommended. The data examined indicates that consuming garlic, ginseng (Panax), green tea, soy, and tomatoes may reduce cancer risk overall, although research is inconclusive, and the lowest dosage linked with reduced cancer risk for any of the herbs mentioned has not been precisely established.

In future research, efforts should be made to standardize methods for measuring the dietary consumption of these herbs. Although there is no evidence to use these herbs regularly, considering the absence of severe side effects, there is no need to advise patients against using them for cancer prevention in most instances. Patients should be informed, however, that taking any or all of these herbs does not ensure that they will not get cancer. For this evaluation, there were fewer research that looked into the effectiveness of herbs as possible cancer therapies.

The majority of the therapy trials were small, open-label, uncontrolled, and not randomized. There has been no replication of any of the research identified. Although there is insufficient evidence to endorse any of the herbs discussed here as a cancer therapy, current data indicate that further study is needed. It seems that further research is needed, especially on mistletoe extracts and tomato (lycopene) products as supplementary therapies. It's doubtful that any of these herbal medicines will be proven to be successful therapies on their own, therefore patients should be advised to keep taking their regular medications. The herbs we've looked at haven't shown any major side effects and don't seem to interact adversely with current treatments (although more research is needed in this area). However, until more conclusive proof of safety is available, physicians should continue to advise against the use of any herbs during chemotherapy and radiation therapies. Although there is evidence that ginger may help with chemotherapy-induced nausea, it is unclear what dosage schedule is most effective. It's also unclear what advantages ginger products offer over traditional ant nausea medications (fewer adverse effects are claimed). For certain people, ginger may be worth a shot.

3. CONCLUSION

Although there is evidence that many cancer patients, or those who are worried about being diagnosed with the disease, use a variety of complementary and alternative medicine (CAM), including herbal remedies, there is a general lack of evidence for the efficacy of most herbs in the treatment or prevention of cancer. The majority of the trials mentioned here are small, uncontrolled, and not randomized. Some of these are promising early findings that should be followed up with more detailed research. Overall, early data indicates that certain herbs may

have a role in cancer prevention or therapy as adjuvant treatments, but herbal medicine does not seem to be a miraculous cure for cancer.

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