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Review Article on Herbal Medicine on Cancer Patients

Chaitanya Sonawane, Rutvij.R.Kashid, Smita.S.Mane, Dr.V.P.Patel, Azhar.C.Shaikh, Vikram Nimbalkar.
Dr.Vitthalrao Vikhe Patil Foundation's College of Pharmacy, Ahmednagar. Sanjivani College of Pharmaceutical Education and Research, Kopargaon

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ABSTRACT:

Complementary and alternative medicine (CAM) is widely accepted by cancer patients, as most patients wish to integrate herbal medicines into their cancer treatments. The value of herbs for cancer patients can only be fully realized by incorporating prescriptions into traditional cancer management practices; Treatment rather than patient opinion. Integrative medicine is an effective way to treat cancer, and some herbs have proven effective in traditional medicine. There is currently little evidence of systematic review or discussion among physicians and herbalists. This review provides perspectives on the role of herbal medicines in cancer prevention, cancer treatment, survivorship management, and hospital care.

Introduction: Complementary and alternative medicine (CAM) is widely accepted by cancer patients in Australia and internationally (Ernst & Cassileth 1998 ; Tascilar et al. 2006). In a recent study, more than half of Australian cancer patients reported using herbal medicine (MacLennan,Wilson & Taylor 2002), although some felt this was due to predictable advertising. Due to the severity of the disease and often cancer, patients are a vulnerable group and may have to make significant financial and psychological investments in herbal treatment (MacLennan, Wilson, and Taylor 2002). The great patient needs to integrate herbal medicine into cancer treatment provides a window for careless doctors to become better people. The full benefit of herbs to cancer patients can only be realized by incorporating herbs into the traditional cancer treatment model; Clinical philosophy instead of patient-centred philosophy. More evidence-based information is needed from qualified medical professionals to facilitate the integration of herbal medicines into the cancer treatment model by medical professionals. This review provides perspective on the role of plants in cancer prevention, cancer treatment, cancer survivorship management, and hospital care

Objectives: To find out the efficacy of herbal medicine for cancer patient.

Conclusions: Integrative medicine is an effective way to treat cancer, and some herbs have proven effective in traditional medicine. There is currently little evidence of systematic review or discussion among physicians and herbalists. Herbal medicine research for cancer patients needs collaboration, guidance and support.

1. Introduction

Complementary and alternative medicine (CAM) is widely accepted by cancer patients in Australia and internationally (Ernst & Cassileth 1998 ; Tascilar et al. 2006). In a recent study, more than half of Australian cancer patients reported using herbal medicine (MacLennan,Wilson & Taylor 2002), although some felt this was due to predictable advertising. Due to the severity of the disease and often cancer, patients are a vulnerable group and may have to make significant financial and psychological investments in herbal

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treatment (MacLennan, Wilson, and Taylor 2002). The great patient need to integrate herbal medicine into cancer treatment provides a window for careless doctors to become better people. The full benefit of herbs to cancer patients can only be realized by incorporating herbs into the traditional cancer treatment model; Clinical philosophy instead of patient-centered philosophy. More evidence-based information is needed from qualified medical professionals to facilitate the integration of herbal medicines into the cancer treatment model by medical professionals. This review provides perspective on the role of plants in cancer prevention, cancer treatment, cancer survivorship management, and hospital care

2. Objectives

To find out theefficacy of herbal medicine for cancer patient.

3. Cancer prevention

Epidemiological studies using mortality data in 24 European countries have shown that fish oil is protective against colon and rectal cancer, while animal fat is carcinogenic (Caygill, Charlett & Hill 1996). The ratio of n-3 to n-6 polyunsaturated fatty acids (PUFA) has been associated with control of the condition and cancer risk (Leitzmann et al., 2004; Weisburger, 1997). Chemopreventive effects demonstrated by n-3 EFA include inhibition of tumor transformation, inhibition of cell growth and enhancement of apoptosis, and anti-angiogenesis (Rose & Connolly 1999); Some studies have shown that n-6 PUFA is a stimulant of these. responses (Leitzmann et al., People, 2004; Weisburger, 1997). Terry et al. A recent review by. (2003) and Terry et al. (2004) found that the evidence regarding whether fish or fish oil consumption in general protects against the development of breast and prostate cancer remains unclear. Leitzman et al. (2004), in a prospective cohort study of 47,866 men, found an association between alpha-linolenic acid (ALA) and prostate cancer, but did not find an inverse association with the ALA metabolite eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). relating to. The omega 3:6 ratio appears to have an effect on the risk of infection (Leitzmannet al. 2004).

In case of cancer, EPA, DHA and fish oil have been sho wn to have antitumor effects (Pons et al., 2003). Theodo ratu et al. (2007) conducted a meta-
analysis of the effects of n-
3 PUFA intake in pooled data from five case-
control studies and found that n-
3 PUFA intake was beneficial in reducing the risk fate o f cancer.
Current evidence, based on in vitro and in vivo studies a s well as epidemiological evidence, indicates that some foods have anticancer potential (Craig 1997; Ernst 2003). Garlic, onion, soybeans, ginger, and vegetables from t he Umbelliferae family (including carrots, celery, parsle y, and parsnips) have the highest immunity (Craig 1997)

Consumption of fruits and vegetables and foods rich in beta-carotene is associated with an increased risk of breast cancer, regardless of whether beta-carotene is present (Cohen, Kristal & Stanley 2000; Cooper 2004; Terry, Terry & Wolk 2001). -Carotene is not known to have anti-inflammatory properties in humans. Proposed mechanisms include antioxidant activity, protection against oxidative damage in deoxyribonucleic acid (DNA) and lipid peroxidation, stimulation of different communication channels, effects on cell transformation/differentiation, inhibition of cell proliferation and oncogene expression, influencing the immune system, and inhibition of production. of endogenous carcinogens (Cooper, Eldrich, and Peters 1999a). Other mechanisms may include metabolic conversion of beta-carotene to retinoids; these then regulate gene expression related to cell differentiation and growth (PDRCealth 2005). Unfortunately, this mechanism has not been shown to contribute to cancer prevention in vivo (Patrick 2000; Cooper, Eldridge & Peters 1999b). The emerging question of Î²-carotene is supported by the results of two large studies, Alpha-Tocopherol-Î²-Carotene (ATBC) Prevention of Cancer (Heinonen et al., 2017). 1994) and the Carotene and Retinol Efficacy Study (CARET) (Omenn et al., 1996) found that high-risk individuals consuming synthetic Î²-carotene had an increased risk of lung cancer. Later studies revealed controversy about beta-carotene. Both the Physicians' Health Study (2,2071 men) and the Women's Health Study (39,876 women) found no harm or benefit of beta-carotene supplementation against

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cancer (Cook et al., 1999; Hennekens et al., 1996; Lee). et al., 2007). 1999). Consequently, Î²-carotene alone is not recommended for cancer prevention, although foods rich in Î²-carotene are also supportive (Pryor, Stahl & Rock 2000).

In addition to Î²-carotene, antioxidant vitamins and phenolic phytochemicals are also thought to have chemopreventive effects (Lee and Lee 2006). Epigallocatechin gallate (EGCG) is a polyphenol isolated from green tea and is thought to have anti-inflammatory properties. Nakachi, Eguchi, and Imai (2003) reported in a prospective study that increased green tea intake was associated with delayed cancer progression and death. Hakim et al. (2003), in a phase II randomized controlled trial, found that drinking green tea reduced oxidative DNA damage in 143 heavy smokers. Although most evidence suggests a positive association between green tea and cancer prevention, a prospective study by Nagano and colleagues (2001) found no association between green tea and cancer.

Resveratrol and quercetin (also a polyphenol) have been shown to have some anti-inflammatory properties in vitro and in animal models (Lee and Lee 2006). Human trials supporting resveratrol are lacking (Lee and Lee 2006). Quercetin has been shown to be anti-cancer in animal studies (Erlund 2004) and in epidemiological studies showing anti-cancer effects (Kim et al. 2004). 2005; Parker et al. 2005), lung cancer (Schwarz, Kisselev & Roots 2005), prostate cancer (Yuan, Pan & Young 2004) and breast cancer (Otake et al. 2000).

Empirical data on soy as an anticancer agent are limited. In vitro and animal experiments show that isoflavones may reduce cancer risk in several ways (Rosenberg Zand, Jenkins, and Diamandis 2002). Experimental evidence shows that grape juice has an effect on the growth of prostate cancer, and isolated lignans have an effect on cancer (Adlercreutz 2002a; Adlercreutz 2002b); However, there are no human intervention studies to support that the juice is anti-inflammatory.

Epidemiological, animal and human data suggest that folic acid may have anti-inflammatory properties. Folate status in breast tissue appears to influence breast cancer risk, but the precise nature of this effect remains unclear (Bollheimer et al. 2005; Powers 2005). In the early 1990s, folate was thought to be associated with colon cancer (Cravo et al., 1992), but in 2005 critical analyzes in vitro, in animals, and several clinical and epidemiological studies concluded this conclusion. High folate intake may affect breast cancer development. There is no chemopreventive effect on the development of colon cancer (Bollheimer et al., 2017). 2005). The role of folic acid in preventing cervical cancer is unclear and unsupported (Henao et al., 2005; Sedjo et al., 2003). According to Choi and Mason (2000; 2002), the role of folate is also a necessary modulator of cancer risk due to its important role in DNA formation, methylation and repair, regulation of hand elongation and inhibition of overgrowth.

Disease progression and patient survival

Scutellaria baicalensis is an ingredient in a popular Chin ese/Japanese recipe called Scutellaria baicalensis decoct ion (China) or Sho-saiko
to (Japan) that has been used for 3000 years (Bruan and Cohen 2007). Due to the great effect of Sho-
saiko on the development of liver cancer, 1.5 million pa tients with chronic liver disease were treated over an 8-year period (Yamashiki et al., 1999). The herb has long been used to treat fever and as an anti-
inflammatory. Therefore, it is now a drug approved by t he Japanese Ministry of Health and Welfare (Bruan & C ohen 2007).

The immunostimulating effects of Sho-saiko-
to are due to its ability to stimulate the granulocyte colo ny stimulating factor (Yamashiki et al. 1992), which co ntrols the cytokine production system (Yamashiki et al. 1992). 1997) and increases the production of IL-
12, an important cytokine that regulates the normal imm une system and biological control (Yamashiki et al., 199 9). The anticancer effects of sho
saikoto are attributed to two of its seven herbs: skullcap and licorice (Yamashiki et al. 1999).

Baicalein, baicalin and wogonin have been shown to induce apoptosis and inhibit the growth of various types of human liver cancer (Chang, Chen & Lu 2002). Scutellaria baicalensis has been shown to be an effective chemotherapy agent for head and neck squamous cell

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carcinoma, which can selectively inhibit the growth of cancer cells in vitro and in vivo (Zhang et al. 2003). Inhibition of PGE2 synthesis through inhibition of COX-2 expression may be responsible for its anticancer activity, to which prostate and breast cancer cells are sensitive (Ye et al., 2002). An in vivo study showed that Scutellaria baicalensis extract had a significant effect on bladder cancer (Ikemoto et al. 2000). Scutellaria baicalensis is one of the drugs included in PC-SPES, a Chinese herbal complex with therapeutic antitumor activity in advanced prostate cancer (Hsieh et al., 2002 ; Oh et al., 2001 ; Small et al., 2000). Scutellaria baicalensis may have an important role in the treatment of cancer and prevention of metastasis. However, its role is not currently supported by strong evidence and further clinical trials are needed to determine its effectiveness.

The active ingredients of Panax Ginseng include saponins, polysaccharides, flavonoids and essential oils. Saponins and polysaccharides are the most studied in cancer treatment (Helms 2004). Unfortunately, there are no clinical studies in humans demonstrating ginseng's anti-cancer properties. Recently, antitumor effects have been reported in various in vitro and animal studies (Helms 2004; Shin et al. 2004). Ginseng has anti-proliferative effects (Kim et al. 2002; Park et al. 2002), anti-metastatic effects (Shin et al. 2004; Hasekawa et al. 2002; Shibata 2001) and apoptosis-inducing effects (Hwang et al. 2001). 2001)) .2002). In contrast, a recent study by Xie, Zeng, and Huang (2001) examined a group of 131 patients receiving radiotherapy for nasopharyngeal carcinoma; 64 patients were selected to receive ginseng polysaccharide injection. Clinical response was similar between the treatment and placebo groups based on overall survival and disease-freedom (Xie, Zeng, and Huang 2001).

Overall, in vitro and animal studies show that ginseng c an limit and slow the growth of cancer cells, as well as i mprove the immune system and the ability of tumor cell s to defeat the immune system and promote apoptosis (Ernst et al., 2007). ; Hull James 2004). Ginseng's ability to increase the effectiveness of other chemotherapeutic drugs, increase synergy and reduce dosage (and therefor e side effects) has been documented (Bruan & Cohen 20 07; Ernst et al. 2007; Helms 2004). There is plenty of ev idence that ginseng can treat all types of cancer, but no clinical trials (Helms 2004; Block & Mead 2003). Howe ver, in China, ginseng has been recognized to be used to treat cancer (Helms 2004). The general effects of curcu min (curcuma longa) on tumorigenesis, angiogenesis, ap optosis and signal transduction pathways have been stud ied in various in vitro and animal models (Gururaj et al. , 2002 ; Mohan et al., 2000 ; Thaloor et al. ., 1998). Cur cumin is known to inhibit tumor progression and growth of various cancers (Anto et al. 1996; Menon, Kuttan, an d Kuttan 1999; Sagar Yance and Wong 2006). Recently, curcumin has been shown to have anti-inflammatory effects on skin, stomach, colon and oral c ancer in mouse models (Braun and Cohen 2007). Unfort unately, there are no human trials testing curcumin, so more evidence of its anti-inflammatory properties is needed.

Mistletoe (Viscum album) or iscador (derivative) is a po pular cancer treatment in Europe
Available in many oncology clinics (Cassileth 1999). In vitro studies have shown that by reducing:
Vascular endothelial growth factor, which also induces apoptosis in cancer cells (Sagar, Yance & Wong 2006). Lung metastases were reduced and survival increased in a mouse model (Zarkovic et al., 2001). A randomized clinical trial in human subjects showed increased survival in several types of cancer, but no conclusions can be drawn (Grossarth-Maticek et al., 2001). A recent phase III study investigating the effectiveness of mistletoe as adjunctive therapy in 477 patients with head and neck squamous cell carcinoma found that 5-year survival was significantly lower in the mistletoe group. This is the same as the control group. Additionally, there is no stimulation in the immune system or improvement in quality of life (Steuer-Vogt 2001).

Most mistletoe research does not have sufficient evidence to recommend its use outside of clinical trials (Linde et al. 2001); However, a recent study of 689 women with breast cancer provides additional evidence for breast cancer screening for fatigue. Provide satisfactory evidence. A total of 219 women were given mistletoe in addition to treatment. Patients taking lectin-based mistletoe extract had lower incidences of nausea, diarrhea, fatigue, and depression compared to controls (Sood et al., 2007). A recent review of prospective studies on Anthroposophia mistletoe extract identifies it

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as a treatment to improve quality of life and reduce the side effects of chemotherapy and radiation (Kienle & Kiene 2007). Cohort studies have been shown to be effective and explain tumor response (Kienle & Kiene 2007). Additionally, an appropriate clinical trial is needed to examine the therapeutic effect, and this may depend on the type of administration (Kienle and Kiene 2007). Similarly, the debate about the preparation and structure of mistletoe needs further evaluation (Horneber et al., 2001).

Slippery elm is an important ingredient in Essiac tea, one of the most popular herbs in North America (Cassileth 1999). It is used to reduce symptoms associated with cancer treatment and as an adjunctive treatment during radiotherapy and chemotherapy (Cheung, Lim & Tai 2005). Recent in vitro testing of Essiac has demonstrated its anti-inflammatory properties, but its in vivo effects are controversial and evidence for its effectiveness is insufficient (Leonard et al., 2006). Clinical studies using Essiac in humans have not been published in peer-reviewed scientific literature.

Licorice (Glycyrrhiza glabra), garlic (Allium sativum), and grapeseed extract (Vitis Vinifera) are all potential anticancer agents (Ray, Parikh & Bagchi 2005; Tanaka et al.2006; Wang & Nixon 2001; Zhang et al. 2005). A 2001.
Analysis shows that licorice and its derivatives can prev ent carcinogen-induced DNA damage and
Glycyretinic acid is an inhibitor of lipoxygenase and cy clooxygenase, inhibits protein kinase C and downregula tes epidermal growth regulator (King and Nickerson 20 01). Tanaka et al. (2006) reported positive results from a double
blind, randomized preliminary clinical trial using high d oses of aged garlic extract (AGE 2.4 mL/day) in patient s with stomach bacteria. AGE significantly reduced the size and number of colon adenomas in 51 patients after 1 year of treatment (p=0.04) (Tanaka et al. 2006). Proan thocyanidins in grape seeds show antitumor properties i n various animal models (Ray, Parikh & Bagchi 2005; Z hang et al. 2005).

Management of cancer therapy side effects

Herbal preparations are being increasingly investigated t o alleviate the negative side effects of conventional canc er treatments. Ginger (Zingiber officinale) may be effect ive in the treatment of chemotherapy-
induced nausea and vomiting (Manusirivithaya et al. 20 04; Sontakke, Thawani & Naik 2003). Ginkgo biloba is used to reduce the side effects of some medications. Evi dence from in vivo studies shows that it protects against cisplatin-induced nephrotoxicity and doxorubicin
induced cardiotoxicity (Öztürk et al., 2017). 2004; Naid u et al., 2002). Although clinical research has not yet de monstrated its results in practice, this aspect of herbal m edicine in cancer patients offers a great and diverse opp ortunity for integration into the management of oncolog y patients.

Scutellaria baicalensis (Scutellaria baicalensis) is used i n cancer treatment not only to reduce side effects but als o to improve chemotherapy (Block & Mead 2003). A sy stematic review of Chinese herbs for the treatment of ch emotherapy-
induced side effects in patients with stomach cancer exa mined the results of four clinical trials using astragalus (Taishan, Munro, and Guanjian 2005). Despite the limita tions of this study, it was concluded that the astragalus p reparation could stimulate the immune system and redu ce side effects in patients receiving treatment (Taifang, Munro and Guanjian 2005).

One of the most serious side effects of radiation therapy is tissue damage. In some cases, damage to normal tiss ue may be severe enough to preclude radiation therapy. For example, acute irradiation of the skin toxicity (Wheat, Currie & Coulter 2007) can cause such debilitating skin breakdown that the full course of radiation therapy can not be completed. Wheatgrass extract has been shown to decrease the time to onset of the most severe grading of acute radiation Toxicity (Wheat, Currie & Coulter 2007) can cause skin damage that is debilitating enough to prevent a full course of radiotherapy. Wheatgrass extract has been shown
to improve treatment compliance by reducing the time to onset of the most severe acute radiation skin toxicities (Wheat, Currie & Coulter 2007). There

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are other potential side effects, both short-term and long-term, that occur as a result of cancer treatment that may benefit from herbal medicine. Although there is no empirical evidence to support this, analgesics (pain/relief), antidepressants (compliance/recovery), antidiarrheals (abdominal radiotherapy), anticongestants (chemotherapy), antimyotherapy (chemotherapy, intestinal radiotherapy), antifibrotic drugs. (radiation damage), decongestant (from surgery or radiation damage), antioxidant (free radicals from radiation therapy), laxative (constipation), collagen stabilizing (radiation damage) and hypnotic (relaxation).

Adverse reaction and interaction

To date, there are very few studies on plant-photodrug interactions (Braun and Cohen 2007). Cytotoxic drugs used in cancer treatment are the most potent drugs available and often have narrow clinical parameters, disease toxicity curves, and many pharmacokinetic and pharmacodynamic differences between and within different patients in the study (Beijnen & Schellens 2004). In principle, the use of antioxidant drugs can reduce cytotoxicity, which requires treatment, especially oxidative processes such as the use of alkylating drugs (e.g. anthracyclines, mitomycins, bleomycin and podophyllin drugs) (Labriola and Livingston 1999). There is currently little evidence to support this theory (Labriola & Livingston 1999). A recent review of human studies involving oxidants and antioxidants found that none of the studies showed a reduction in the risk or treatment of cancer, increased blood pressure (Block 2004). Importantly, hormonal anticancer agents, biologics, antimetabolites and some plant-based agents do not depend on the production of reactive oxygen species (Labriola & Livingston 1999).

Long-term side effects Cisplatin, an important drug, is caused by the production of free radicals that can cause oxidative damage (Braun & Cohen 2007). Antioxidants in plants and foods have been studied in animals and humans, and many studies show that they may cure or prevent some diseases improvement of recovery (Ali and Moundhri 2006; Lamson and Brignall 1999; Seifried et al. 2003). Vitamin E and selenium ameliorated experimental cisplatin nephrotoxicity in various studies (Ali and Moundhri 2006; Pace et al. 2003), as did the antioxidant lycopene (Atessahin et al. 2005). Furthermore, combined treatment with vitamins C, E, and selenium failed to protect against cisplatin induced nephrotoxicity (Weijl et al., 2004). Poor patient compliance, small number of patients, and insufficien tantioxidant support are the limitations of this study. Current evidence does not support the idea that antioxidant reduce the effectiveness of drugs, and more research is needed.

Hormonal drugs are used in cases where cancer is sensitive to hormonal growth control (Braun & Cohen 2007). Many active ingredients in herbal preparations can affect or inhibit tumor growth or interfere with hormonal therapy (Braun and Cohen 2007). Flavonoids have many biochemical and pharmacological effects and have been the target of many studies, particularly their anticancer properties attributed to the scavenging of free radicals, modification of enzymes that activate or eliminate carcinogens, and inhibition of carcinogen induction. Transcription factor activator protein 1 activity in cancer cells (Moon, Wang & Morris 2006). The following elements have been found to reduce estrogen biosynthesis: chrysin and baicalin, naringenin, genistein and biotin A (Moon, Wang & Morris 2006). They do this by inhibiting the activity of aromatase (cytochrome P19) and can be used in breast and prostate cancer (Kao et al., 1998). Soy isoflavones bind to estrogen receptors and may slow cell proliferation (Wood et al. 2006).

There is considerable controversy regarding the use of grape isoflavones as anticancer agents, and existing literature is conflicting regarding their effectiveness (Braun and Cohen 2007). Recent research has focused on the ability of liquid isoflavones to enhance or inhibit the effects of anti-inflammatory drugs such as tamoxifen (Constantinou et al. 2005). Some studies have suggested the possibility that genistein may compete with tamoxifen for estrogen receptors, thereby reducing the drug's effectiveness; this is an observation reported in two studies (Constantinou et al., 2005; Ju et al., People, 2002). Additionally, studies using daidzein have yielded positive results in mouse m

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odels, increasing the anti-
cancer effect of tamoxifen (Constantinou et al., 2005). T aken together, these results suggest that genistein may h ave side effects when combined with tamoxifen, but jui ce may be beneficial when combined with tamoxifen.

Pharmacokinetic interactions often involve metabolic en zymes (cytochromes) or drug transporters that affect the bioavailability of many oral drugs and can lead to vario us drug reactions (Braun and Cohen 2007). Examples of antibiotics that are P-
gp substrates are: daunorubicin, docetaxel, doxorubicin, paclitaxel, paclitaxel, tacrolimus, vinblastine and vincri stine (Braun & Cohen 2007). The effects of plants on P-gp expression are now attracting much attention. In addi tion to St. John's wort as well as the isoflavone genistein also inhibit P-gp
mediated drug transport (Castro & Altenberg 1997). Alt ernatively, rosemary extract (Rosmarinarus officinalis) acts as a P-
gp inducer and increases intracellular concentrations of doxorubicin and vinblastine (Plouzek et al., 1999).

Many chemotherapy drugs are metabolized by the CYP 450 system during phase I metabolism (Mills & Bone 2 005). Although there are more than 50 enzymes in the C YP system, the most important for drug metabolism are CYP1A2, 2D6, and 3A4; the latter is involved in the me tabolism of many anti-
inflammatory drugs (Beijnen & Schellens 2004). Amon g medicinal plants, most of the research has been condu cted in St. Long
term administration of St. John's wort causes effects on CYP enzymes, especially CYP3A4 (Durr et al., 2017). 2 000; Roby et al. 2000; Ruschitzka et al. 2000). The effe cts of silymarin on CYP isoenzymes and transporters ha ve also been investigated and found to reduce CYP3A4 activity in primary cultures of human hepatocytes (Gurl ey et al., 2004). Some other herbs have the potential to a ffect drug absorption and/or metabolism, but more in vi vo studies are needed before a predictive discussion can be made (Braun and Cohen 2007). Clinically, the effect s of herbs that affect CYP enzymes may be harmful. Bl ood levels of drugs that are CYP3A4 substrates may dec rease, which may reduce the effectiveness of the drug a nd cause treatment failure (Moore et al. 2000).

4 Conclusion

Integrative medicine is an effective way to treat cancer, and some herbs have proven effective in traditional medicine. There is currently little evidence of systematic review or discussion among physicians and herbalists. Herbal medicine research for cancer patients needs collaboration, guidance and support.

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