A guide to using complementary alternative medicines in cancer

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Many cancer patients use complementary alternative medicines but may be unaware of the potential risks. Good communication skills and sensitivity are essential to discuss the patient’s needs and preferences and suggest solutions that are safe and legally defensible.

The use of complementary alternative medicines (CAMs) in patients who have chronic disorders such as cancers, is well documented (Ernst and Cassileth, 1999; Eisenberg, 1993). These are used on their own (alternative) or in addition to conventional medicine (complementary) (Zimmerman and Thompson, 2002). Estimates in reported prevalence of CAM use in cancer patients are in the range of 7–80 per cent (Bernstein and Grasso, 2001; Ernst and Cassileth, 1998).

Patients may take CAMs for various reasons. For instance, rightly or wrongly they have a positive ‘natural’ reputation among significant sections of the population, and therefore can be popular with patients from a variety of cultural backgrounds. Also some CAMs were successfully converted into effective medicines. Drugs derived from CAMs include:

- Aspirin from willow tree;
- Morphine from poppy;
- Paclitaxel from yew tree;
- Vinca alkaloids from rosy periwinkle.

CAMs comprise a great range of pharmacological, physical and psychological approaches, including special diets. Discussing all approaches would be beyond the scope of this article, and so pharmacological treatments will be used to demonstrate the underlying concepts. This can be grouped into:

- Herbal remedies;
- Food supplements including vitamin preparations;
- Trace elements and other substances such as omega-3 fatty acids;
- Other organic and inorganic remedies such as shark cartilage and hydrazine.

Some foods in their own right, such as tomatoes or soy, may have specific effects. Others, such as grapefruit, can interact with many conventional medicines and thus are considered pharmacologically active.

CAMs used by cancer patients

These include anti-cancer remedies, immune stimulants, psychotrophics, substances with endocrine properties and other remedies used for a variety of side-effects. In most cases clinical evidence for effectiveness is sparse, but some remedies have a significant potential for adverse effects. The list given here can only be selective and highlights some of the effects and side-effects.

Anti-cancer remedies

Beta-glucans (lentinan, schizophyllan) are derived from yeast and other fungi or oats. They may enhance the immune response in general and the response to cancer cells in particular (Fullerton et al, 2003), and are synergistic with the effect of monoclonal antibody therapy, which is given for example to target malignant lymphocytes (Hong et al, 2003). Beta-glucans are well tolerated and have few drug interactions. However, due to their immune-system stimulating properties they may theoretically counteract any immunosuppressant drug such as azathioprine, cyclosporin and corticosteroids. Beta-glucans are not orally absorbed, and over-the-counter (OTC) supplements may not be effective, even if the manufacturer states otherwise.

Kombucha tea, another fungal preparation, is not thought to be effective, but can lead to significant side-effects. Particularly worrying is its potential for bacterial contamination including aspergillus and anthrax. Patients who are immunocompromised and those who already suffer side-effects from chemotherapy may be particularly at risk.

Shark cartilage became popular after it was postulated that sharks do not develop cancer. However, this observation was later refuted. Shark cartilage may stop blood

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**BOX 1. EVIDENCE FOR SAFETY AND EFFICACY**

**Potential liability risk:** Probably not liable

**Strategy:** Recommend and continue to monitor

**Clinical examples:**
- Beta-glucans
- Saw palmetto (for benign prostatic hyperplasia)
- St John’s wort (if no significant interactions)
- Cod liver oil
- Ginger
- Selected antioxidants in cancer prevention and selected cancers in recommended dosages

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REFERENCES


vessel growth in tumours by cutting the blood supply. Trials testing its effectiveness in multiple myeloma, lung and renal cancer are ongoing (Bukowski, 2003; Gringas et al, 2003). Oral shark cartilage is not readily absorbed, although special formulations are developed. Again, over-the-counter preparations are unlikely to work.

Hydræzine has been used for the treatment of cachexia, but there is no evidence supporting effectiveness as an anti-cancer remedy. It can affect the central and peripheral nervous system and alter blood glucose levels.

Essiac and Flor-essence are combinations of several herbs with different properties. No clinical studies are available suggesting any benefit, although some of the constituents have an anti-tumour effect in theory. Most likely, the concentration of ingredients would not be sufficient, and taking high doses may lead to nephrotoxicity. Also, both formulations may interact with corticosteroids and antidiabetic drugs.

Laetrile is made from apricot kernels. It is also known as amygdalin or vitamin B17, which is misleading because laetrile is not a vitamin. Laetrile can be broken down to cyanide, which is toxic. There is no evidence for its effectiveness. In view of potential risks, laetrile should be avoided (Wilson, 2000). PC-SPES, a combination of eight herbs with antioxidant, cytotoxic and oestrogenic properties, has been shown to reduce prostate specific antigen (PSA) in androgen-independent prostate cancer (Pfeifer et al, 2000). PC-SPES was withdrawn from the US market after contamination with oestrogens, warfarin and indometacin was reported. It has re-emerged as a similar combination of plants called PC-HOPE.

Carctol is another combination of eight different herbs with antioxidant, oestrogenic and possibly cytotoxic properties. However, no clinical evidence is available. The distributors claim carctol has no side-effects, but one component contains coumarin, an anticoagulant. Also, two of the plants may lower blood sugar.

**Immunostimulants**

Echinacea is traditionally used for common colds but its effectiveness remains unclear. Echinacea may stimulate the growth of B lymphocytes and activate immune factors (Luetting et al, 1989; Stimpel et al, 1984), and counteract conventional therapies that try to suppress malignant cell lines. Echinacea can alter the plasma level of many drugs and may cause liver problems, for instance when taken with ketoconazole or methotrexate.

Clinical studies on mistletoe have failed to demonstrate an anti-cancer effect. However, there is some evidence that it may improve quality of life (Ernst et al, 2003). Mistletoe can lead to allergic reactions and theoretically interact with immunosuppressants and corticosteroids.

Cat’s claw and pau d’arco may have some anti-carcinogenic properties, but evidence is insufficient to recommend their use. Again, cat’s claw may interact with many other drugs, and pau d’arco can cause severe gastrointestinal problems and increases the risk of bleeding.

Thymus therapy may work in theory but not in practice. Potential side-effects include severe allergic reactions. Injection of foreign lymphatic tissue could also theoretically lead to BSE transmission.

**Antioxidants**

There are a variety of antioxidants including vitamins A, C and E, beta-carotene, selenium, coenzyme Q10, green tea, tomato and turmeric. In general, the evidence for cancer prevention is stronger than for its cure. Patients should avoid high-dose vitamins. For instance, high-dose vitamin C in combination with methotrexate can damage the kidneys, and too much selenium can be toxic. Smokers should not take beta-carotene since this may increase the cancer risk rather than reducing it (Patrick, 2000).

**Remedies with endocrine properties**

Phytoestrogens include dong quai, panax ginseng, liquorice, red clover, soy and wild yam. They are commonly used to alleviate tamoxifen-induced menopausal complaints. Clinical studies are inconclusive for most substances (Huntley and Ernst, 2003), and there is a theoretical risk of stimulation of malignant breast cancer cell proliferation (Bodinet and Freudenstein, 2004).

Other endocrine remedies include black cohosh and evening primrose oil, which are both thought to have oestrogenic action. Similar problems as mentioned above apply. Saw palmetto is an anti-oestrogen and may relieve symptoms of benign prostatic hyperplasia.

**Psychoactive remedies**

Ginkgo biloba and panax ginseng are often taken as energy boosters and to combat fatigue. Study results remain inconclusive but individual patients may benefit. Panax ginseng can lead to changes in blood pressure, sleep difficulties and to mania in vulnerable patients, for example those with manic-depressive illnesses who are taking antidepressants. Ginkgo may increase the risk of bleeding: some cases of brain haemorrhage have been

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**Box 2. Evidence exists for safety but efficacy is inconclusive**

<table>
<thead>
<tr>
<th>Potential liability risk: Conceivably liable but probably acceptable</th>
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<tbody>
<tr>
<td>Therapeutic strategy: Tolerate, advise caution, and closely monitor effectiveness</td>
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**Clinical examples:**
- Remedies that have endocrine properties in individual cases
- Echinacea except where immune system suppression is desired and haematological cancers (not for continuous use)
- Ginkgo
- Ginseng and remedies with endocrine properties except breast and ovarian cancer
- Milk thistle

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**REFERENCES**


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BOX 3. EVIDENCE FOR EFFICACY BUT SAFETY IS INCONCLUSIVE

Potential liability risk: Conceivably liable but more than likely acceptable

Therapeutic strategy: Consider tolerating, advise caution and closely monitor safety

Clinical examples:
- Mistletoe (for quality of life only)
- Remedies that have endocrine properties in individual cases
- Passion flower (non-cyanide containing species)

reported (Benjamin, 2001; Matthews, 1998). It is unclear whether the incidence of adverse effects is higher than with licensed drugs.

St John’s wort (hypericum) is a herbal antidepressant, but its efficacy may be limited to mild depression (Werneke et al, 2004a). It interacts with many drugs including antivirals, antifungals, antiepileptics, clospirorin, warfarin, oral contraceptives and many anti-cancer drugs. Passion flower is a sedative with comparable efficacy to oxazepam in treating general anxiety disorder (Akhoundzadeh et al, 2001). Side-effects may vary between species as some contain cyanide components. Heart problems and severe nausea have been reported.

Other remedies

Cod liver oil is used for a variety of indications. Trials have shown that it may be beneficial for arthritis (Curtis et al, 2004; Gruenewald et al, 2002). Bleeding time may increase in combination with warfarin or non-steroidal anti-inflammatory drugs such as ibuprofen and aspirin. This does not mean cod liver oil cannot be taken, but clotting factors and bruising should be monitored closely. Ginger has been successfully used in chemotherapy-induced nausea, and can be used on its own or with conventional anti-emetic agents (Ernst and Pittler, 2000). It is usually well tolerated and has few side-effects. Theoretically, ginger may interact with antihypertensive, anti-coagulant and anti-diabetic drugs. The clinical evidence is limited, but effectiveness has been suggested for alcohol-induced liver damage or poisoning with industrial toxins and amanita mushroom.

Medicolegal implications for CAMs

In the UK, health care professionals do not routinely provide CAM treatments, although this is likely to change in future. Thus medicolegal issues, which are largely under-explored, will become more prominent.

Medical liability issues arise when clinicians integrate CAM into conventional treatments. Malpractice liability may be given if a treatment falls below the standard of care and injures patients. Also, patients need to be informed about potential side-effects and interactions with conventional therapies. Further problems can arise when patients decide to discontinue conventional therapies in favour of a less effective CAM alternative.

The CAM consultation

Achieving effective communication

Discussing CAMs with patients is not easy and can be time consuming. Health care professionals need to be aware of CAM-induced side-effects or interactions, and should be able to identify hazards, advise patients accordingly and avoid uncritical encouragement of potentially harmful use (Boxes 1–4). Ignorance in this area, given the independent usage of CAMs, may lead to criticism and possibly litigation (Cohen and Eisenberg, 2002).

On the other hand, unduly defensive practice discouraging CAM use in each case is equally inappropriate and may prevent patients from disclosing information about CAMs. A recent study found less than half of all patients would tell their conventional practitioners about CAM use, although most of those who did so received a positive response (Werneke et al, 2004b). Giving reliable advice is difficult as CAMs clinical studies are not available for many substances. Equally, since CAMs are not licensed, adverse events are not systematically monitored. However, particularly when there is a significant if theoretical risk of serious side-effects or interference with conventional treatment – one may wish to err on the side of caution.

The patient’s perspective, on the other hand, may be entirely different. For instance, some patients look for a more holistic approach to treatment, feeling that conventional cancer care tends to neglect their spiritual needs and deprives them of control of their treatment (Sparber, 2000). Others may hope that CAMs, being ‘natural’, have fewer or no side-effects, while some cancer patients may feel disillusioned by the apparent ineffectiveness or significant adverse and often toxic effects of conventional treatment.

Others may feel guilty about their lifestyle before the cancer was diagnosed and feel that they have brought the cancer upon themselves. They may wish to restore their equilibrium with nature. Thus, active discouragement of CAM use may be interpreted as disregard for the patient’s needs. Attributing poor outcomes of their treatment, for example developing metastatic disease, solely to CAM use would not only be factually wrong in many cases, but also particularly unhelpful, leading to a sense of anger and humiliation. Equally, patients who have experienced detrimental side-effects of conventional therapy, may feel deceived if CAM use was comprehensively discouraged (Crown, 2004).

Irrespective of how adverse reactions evolve, health care professionals who do not gain insight into why good intentions are ‘misinterpreted’, may experience considerable frustration. Patients’ actions may be seen as irrational, ineffective and self-defeating. Typical assumptions are that the patient does not want to comply with treatment or get better.
A successful CAM consultation

Integrating CAMs into the conventional clinic setting is not easy, and good communication skills are essential to negotiate treatment options that meet the patients’ needs and preferences, are safe, have acceptable opportunity costs and are legally defensible. Below are suggestions for integrating CAMs into practice:

- If it is important for the patient, it is important. Something which may appear trivial to a health care professional may be very important to a patient;
- What is intuitively appealing is not always right – this applies to the common belief that CAMs are safe by default because they are ‘natural’. Explain how many effective medicines with a potential for serious adverse effects began as herbal remedies. For instance, before digoxin and related glycosides were standardised in tablet forms, they were administered as a foxglove tea. However, with standardised preparations available, this practice is discouraged due to the high risk of digitalis toxicity;
- Scientific studies can help to make informed guesses about how patients will be doing, but each patient should be seen as an individual, particularly when the trial evidence is weak or the available trials have been too small to detect a significant effect. The same, however, also applies to side-effects. Even if adverse events have not yet been reported, they still may have occurred or may emerge in future;
- ‘Wonder cures’ do not justify the use of a remedy as the association may be spurious. To assess whether a remedy has curative qualities each case of alleged cure needs to be meticulously analysed. If patients are told that the CAM treatment did not work because their mindset was wrong or they did not try hard enough, encourage them to check their CAM practitioner’s credentials;
- If a CAM treatment is only available in selected private clinics, it is probably ineffective or dangerous or both. Apart from putting their health at risk, patients may also have to face huge bills. Advise patients to seek more information before going ahead with treatment, for example from the www.quackwatch.org website;
- Encourage patients to ask their CAM practitioners to explain the mechanism of action of the proposed treatment and provide evidence for its effectiveness. This is very effective and shifts acrimonious discussion away from you. Contrary to conventional practitioners, CAM practitioners are hardly ever questioned about their expertise and their clinical outcomes. Get your patients to ask not only for whom the remedy has worked and why, but also for whom it has not and why;
- Discouragement of CAM use does not mean rejection of the person. If you are asked whether you would still support a patient if she/he discontinued conventional treatments, you should agree to do so. However, emphasise and document that the individual’s decision is still being taken against medical advice, and outline the risks. It may be useful to work out a contingency plan in order to assist patients in recognising problems and taking appropriate action;
- Encourage patients to bring their literature to the consultation. Surfing the internet together will allow you to check the quality of the information and suggest alternative websites. This can be lot of fun and add spontaneity to your consultation;
- A positive word at the beginning of the consultation will strengthen your therapeutic relationship with the patient and build bridges where mutual prejudices exist. Start the consultation by complimenting the patient for understanding what makes you feel the way you do. Acknowledge that conventional therapies also can have serious side-effects. Then end on a positive note. If somebody adamantly wishes to take a CAM approach identify remedies that may have some effect and are safe. Drug information and other colleagues may help;
- Explore your own feelings when you discuss CAMs with patients, as this can make your consultation more constructive. If you are angry or disappointed and you do not know why, it is likely that your patient will feel the same. Understanding what makes you feel the way you do can help you understand why the patient feels the way she/he does. Sometimes you cannot achieve this here and now. Rather than arguing, arrange a further appointment and start afresh.

Conclusions

Conventional practitioners need to be aware of CAM-induced side-effects or interactions and encourage patients to tell them about CAM use. Consultations about CAMs are often complex and may require considerable knowledge, tact and skill. Due to time constraints it is unlikely that CAMs can be sufficiently considered in routine clinics, and alternative models of service provision such as dedicated CAM clinics need to be explored.

REFERENCES


