Alternative medicine

After completing this tutorial, you will be able to:

- Describe some of the safety concerns that herbal products and dietary supplements may present to patients.
- Search reliable resources for information about the safety of common herbal medicines and dietary supplements.
- Ask appropriate questions when talking to patients or healthcare professionals about the safety of these medicines.

Why this subject matters...

Complementary and alternative medicine (CAM) is a broad term that includes many beliefs and therapies, but in this tutorial we shall look at herbal and homeopathic medicines, and dietary supplements.

St John's wort

You are most likely to be asked about this subject when working in an MI centre or answering calls from a patient helpline, although it may occasionally crop up on your ward. In practice, most of the time you will be looking into the **safety aspects** of these medicines. Although a few studies have reported favourably on the use of selected preparations such as St John's wort for depression, for most alternative medicines there remains a lack of good quality research-based evidence for efficacy or tolerability.

General principles

1. Herbal medicine

Herbalists use plant-derived medicines at doses where true pharmacological effects can occur and can be measured (this is in contrast to homeopathic medicine).

For example, the herbal product guarana comes from a plant *Paullinia cupana* which naturally contains large amounts of caffeine so it is taken to cause alertness, but it can also produce the side effects of caffeine such as insomnia and anxiety.

Aloe vera

Conversely, valerian is from the flower *Valeriana officinalis* and its constituents have CNS depressant actions so it is taken as a sedative. This means it can generate unwanted sleepiness as a side effect and it has even been reported to cause a withdrawal-type reaction after long-term use, similar to benzodiazepines.

Herbal products may be administered by various routes. Usually they are taken orally, but *Aloe vera*, is an example that is commonly applied topically, and mistletoe (*Viscum album*) is sometimes given by injection.

2. Homeopathic medicine

The two main principles of homeopathic medicine are:

- 'Like cures like' – a patient's symptoms are treated with a substance that could cause the same symptoms.
- The more dilute a preparation, the more potent it is.

Plants yield most of the original ingredients in homeopathic medicines, but the solutions used are very dilute. Two systems of dilution exist for homeopathic remedies – decimal ('x') and centesimal ('c') – but the strengths 6c and 30c are common. It is worth noting that dilutions of more than 12c or 24x are unlikely to contain any molecules of the active ingredients.

There is no evidence that homeopathy is effective as a treatment for any health condition.

3. Dietary supplements

In the UK, dietary supplements are defined as 'foods' in unit dosage form (e.g. tablets, capsules, liquids) taken to supplement the diet. Most are products containing nutrients

normally present in foods. They may include vitamins and minerals, oils containing fatty acids (e.g. fish oils), plant-based substances (e.g. garlic) or other 'natural' substances that claim to have beneficial effects (e.g. royal jelly).

Safety issues

1. Herbal medicines

Many patients perceive herbal medicines as 'safe' because they occur naturally. However, some herbal medicines can be potentially harmful at therapeutic doses, such as kava-kava (now banned in the UK) which can cause hepatotoxicity, and St John's wort which can interact with many conventional medicines.

Kava-kava
Courtesy Wowbobwow12, Wikimedia Commons

In addition, the quality of some unregulated herbal products such as those used in traditional medicine may be causes of harm. Potential problems include:

- Failure of good manufacturing practice; incomplete or inaccurate labelling sometimes leading to inability to identify the product or its ingredients; incorrect dosage or instructions.
- Adulteration (e.g. inclusion of pharmaceuticals or toxic metals); misidentification of herbs; substitution (i.e. different herb used to that which is supposed to be in the preparation); varying strengths of active ingredient between brands or batches (e.g. for St John's wort preparations)

The amount of reliable **safety information** available about herbal medicines can be very limited. This lack of data makes it difficult to provide information in response to common clinical questions such as: *Will it interact with my prescription medicines? Is it OK to use in renal impairment? Could it be causing my patient's hyperglycaemia?* We highlight some Information sources later in this tutorial that can help you by summarising published evidence or offering guidance.

Questions about **interactions between conventional medicines and herbal products** are particularly common. Since there are rarely any high-quality clinical studies, it is helpful to look for herbal side effects that might be additive to those of the medicine or, conversely, may oppose its therapeutic action. For example, high strength garlic products can increase the risk of bleeding so patients should be careful about taking anticoagulants or antiplatelet medicines. *Echinacea* has been reported to have immune-stimulating effects so caution is advised if taken with immunosuppressant medicines. A few herbal medicines such as St

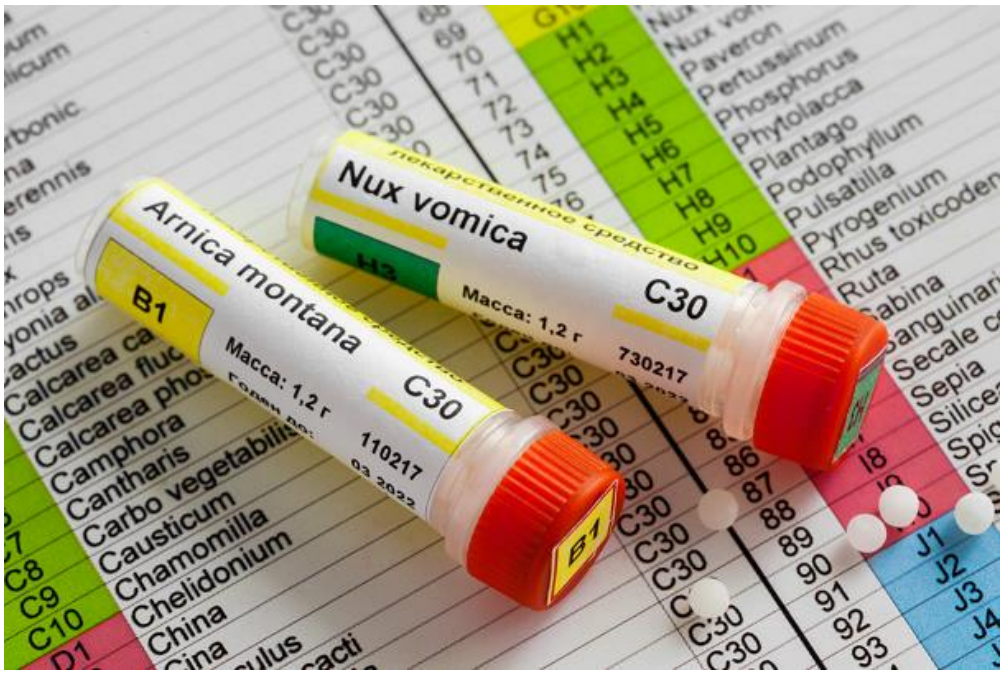
John's wort and Panax ginseng may affect drug-metabolising enzymes such as cytochrome p450, which broadens the potential for interactions.

Echinacea

Many **side effects** of herbal products are probably dose-related Type A reactions, but the constituents of the herb and/or the pharmacology of those constituents are often not clearly established. So predicting side effects is not easy, and large-scale safety studies are generally absent. Consequently, a lot of the information about safety comes from small studies or case reports of suspected significant adverse reactions to individual herbal medicines in the medical literature. People can of course be allergic to herbal medicines too – *Calendula*, for example, can cause eczema-type skin reactions. The main method for reporting adverse reactions due to herbal medicines in the UK is to the MHRA through the Yellow Card Scheme.

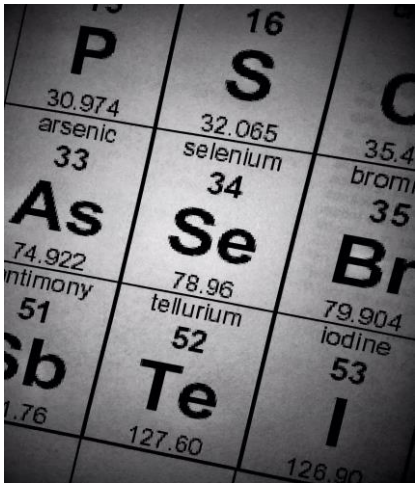
2. Homeopathic medicines

There is no evidence that homeopathic medicines interact with conventional medications. In practice, if a homeopathic medicine is from a reputable source and the strength is stated, it is generally accepted that they are so dilute that they do not interact with conventional medicines or cause adverse effects.



However high concentration or products whose strength is unknown could contain active ingredient(s) and could potentially interact with conventional medicines.

3. Dietary supplements



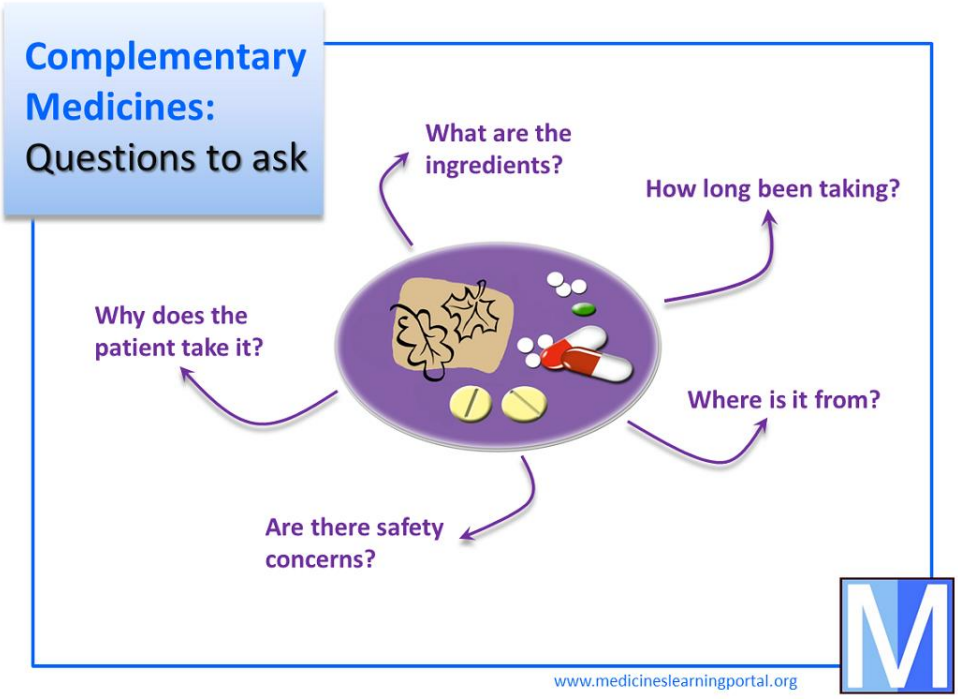
Dietary supplements also have the potential to cause adverse effects and to interact with conventional and alternative medicines. Some products contain levels of vitamins or minerals in excess of those in prescription-only medicines and high doses can cause toxicity. Patients taking chronic high doses of selenium, for example, can develop selenosis – a condition which has symptoms such as fatigue, skin/hair/nail changes, peripheral nerve damage, gastrointestinal upset, and can be fatal.

The Food Standards Agency has set safe levels of intake for vitamins and minerals.

Suggested questions

Most clinical problems involving alternative medicine are concerned with Adverse reactions or Interactions, so follow the links to see the questions to ask in these situations. There are also some general questions to ask when faced with any clinical problem.

However, in addition to investigating the patient's drug history and medical history, there are five broad questions concerned with alternative medicine that you might find helpful in practice:



- **What is the alternative medicine and what does it contain?** *Brand names often tell you little, and many products have multiple ingredients. It's helpful to see the original pack so you can read the full list of ingredients and the recommended dose. Some products simply comprise vitamins and minerals within their recommended daily allowance.*

- **How long has the patient been taking it?** *If it was started shortly before the appearance of a new side effect then maybe the medicine is responsible. However, if an alternative medicine has been taken safely alongside existing conventional medicines for years, then an interaction is unlikely. If the patient has not yet started the alternative medicine there is an opportunity to intervene if it might not be safe.*

- **Where did they get it from?** *Is it a familiar OTC brand bought from a reputable outlet, or a poorly labelled powder sourced from an unfamiliar website? Was it prescribed for them, and if so by whom?*

- **Why does the patient want to take it?** *Has the patient self-diagnosed their medical problem, and would it be helpful for them to see a doctor about it? You may be able to*

recommend a safer or more evidence-based alternative. Is the patient potentially taking a complementary therapy to treat a side effect from another treatment?

- **Does the patient or healthcare professional have a particular safety concern?** *For example, are there symptoms that may be a side effect, or uncertainty about an interaction?*

Generally, you will often be trying to answer the question: '**What are the potential risks posed to the patient taking into account their past medical history and concomitant medicines?'**

Information sources

With this topic, more than most, there are many unreliable sources of online information. You may like to look at our brief guide to evaluating websites about medicines. Only use validated websites where you can be sure of the quality of information such as the ones below, and take care that some products with the same or similar brand name may have different ingredients.

Ginkgo biloba

The Natural Medicines Database is a US resource that is useful for a range of clinical problems. It requires a subscription, but some MI centres have access.

The Memorial Sloan Kettering website has a free and detailed guide to many herbs and dietary supplements, outlining interactions, side effects and warnings.

There are some helpful reviews of individual herbs or dietary supplements on the Mayo Clinic website and the SPS website (use the search bar).

- The Pharmaceutical Press publishes resources that you may have access to. Herbal Medicines and Dietary Supplements can help with a range of clinical problems including contraindications, adverse effects, interactions, and efficacy. Stockley's Drug Interactions includes some information on herbal medicines and supplements, but Stockley's Herbal Medicines Interactions is a companion text that solely focuses on interactions with complementary therapies.

- Google can be helpful to try to identify more obscure products, but bear in mind the limitations about reliability.

Presenting your answer

Once you've asked sufficient questions, gathered the information required and assessed it, you'll need to provide an **answer**. We can offer you some general guidance on answering clinical problems.

Next steps in learning...

CPPE
CENTRE FOR PHARMACY POSTGRADUATE EDUCATION

The Pharmaceutical Society of Australia has developed a series of e-lectures on complementary medicines which are hosted on the CPPE website. Each short lecture addresses an individual alternative medicines such as Ginkgo biloba, fish oils, and glucosamine, and discusses aspects such as evidence for use, adverse effects, and commonly asked questions. Note that they represent Australian law and regulations, rather than UK.

Read more about the MHRA's role in monitoring the safety of herbal and homeopathic medicines here.