Herbal Remedies and Anaesthesia

DOES IT MATTER?

Adrian Wong
Consultant Anaesthetics/ICM
@avkwong
Definitions & Legislation

Scale

Commonly used remedies

Practicalities
Definitions & Legislations
Definition

16. Article 1 of Directive 2001/83/EC defines a medicinal product as:

(a) "Any substance or combination of substances intended for use in the diagnosis, prevention or treatment of a disease in humans or animals, or for modifying the physiological functions of humans or animals, and which may be administered in, or administered to, human beings, either with or without the supervision of a medical practitioner, or to making a medical diagnosis" ["the second subparagraph of Article 2(1) of Directive 2001/83/EC"]

(b) Any substance or combination of substances intended for use in the diagnosis, prevention or treatment of a disease in humans or animals, or for modifying the physiological functions of humans or animals, and which may be administered in, or administered to, human beings, either with or without the supervision of a medical practitioner, or to making a medical diagnosis"

A GUIDE TO WHAT IS A MEDICINAL PRODUCT
New EU regulations on herbal medicines come into force

By Dominic Hughes
Health correspondent, BBC News

New European Union rules have come into force banning hundreds of traditional herbal remedies.

The EU law aims to protect consumers from possible damaging side-effects of over-the-counter herbal medicines.

For the first time, new regulations will only allow long-established and quality-controlled medicines to be sold.

But both herbal remedy practitioners and manufacturers fear they could be forced out of business.

To date, the industry has been covered by the 1968 Medicines Act, drawn up when only a handful of herbal remedies were available and the number of herbal practitioners was very small.

But surveys show that about a quarter of all adults in the UK have used a herbal medicine in the past two years, mostly bought over the counter in health food shops and pharmacies.
The Human Medicines Regulations 2012

Made - - - - 19th July 2012
Laid before Parliament 24th July 2012
Coming into force - - 14th August 2012
"When seeking a licence for herbal medicines, many companies have had difficulty meeting conventional requirements to prove efficacy."
## Herbal medicines granted a traditional herbal registration

**Updated 7 March 2017**

<table>
<thead>
<tr>
<th>THR number</th>
<th>Grant date</th>
<th>Registration holder</th>
<th>Product name</th>
<th>Active Ingredient</th>
<th>Product indication - Traditional use</th>
</tr>
</thead>
<tbody>
<tr>
<td>THR 13668/0009</td>
<td>30/10/2006</td>
<td>Bioforce (UK) Ltd</td>
<td>Atrogel</td>
<td>Arnica Flower (Arnica montana L.)</td>
<td>For the symptomatic relief of muscular aches and pains, stiffness, sprains, bruises and swelling after contusions.</td>
</tr>
<tr>
<td>THR 23056/0001</td>
<td>26/01/2007</td>
<td>M H Pharma (UK) Ltd</td>
<td>Flexiherb</td>
<td>Devil's Claw (Harpagophytum procumbens (Burch. DC ex Metten))</td>
<td>For the relief of backache, rheumatic or muscular pains and general aches and pains in the muscles.</td>
</tr>
</tbody>
</table>
Natural/Herbal does not mean completely safe
A global issue

Coming to a hospital near you
National policy on traditional medicine
and
regulation of herbal medicines

Report of a WHO global survey

World Health Organization
Figure 1: Progress in worldwide regulation of traditional medicine

- **WHO member states with traditional medicine policy**
- **WHO member states regulating herbal medicine**

### Populations using traditional medicine for primary health care
- Ethiopia: 90%
- Benin: 70%
- India: 70%
- Rwanda: 70%
- Tanzania: 60%
- Uganda: 60%
- Canada: 70%

### Populations in developed countries who have used complementary and alternative medicine at least once
- Australia: 48%
- France: 49%
- USA: 42%
- Belgium: 31%
"Beijing declaration"

The key outcome of the Congress was the "Beijing Declaration", which identified common aims and principles reached by participants at the Congress. The preparation of the declaration was structured. Prior to the Congress, the first draft was sent out, and comments were gathered and modifications made accordingly. A second draft was sent to participants before the Congress. During the Congress, an ad hoc drafting team was created to discuss and harmonize the comments submitted to WHO prior to the Congress and to enable the Declaration to be adopted during by the Congress.

During the final session of the International Forum, chaired by the Minister of Health of the Union of Myanmar, Congress delegates adopted the Beijing Declaration. In addition to preamble text noting a number of related initiatives and reflecting the importance of national contexts with regard to capacity, priorities and relevant legislation, the declaration identified the following six articles:
I. The knowledge of traditional medicine, treatments and practices should be respected, preserved, promoted and communicated widely and appropriately based on the circumstances in each country.

II. Governments have a responsibility for the health of their people and should formulate national policies, regulations and standards, as part of comprehensive national health systems to ensure appropriate, safe and effective use of traditional medicine.

III. Recognizing the progress of many governments to date in integrating traditional medicine into their national health systems, we call on those who have not yet done so to take action.

IV. Traditional medicine should be further developed based on research and innovation in line with the "Global strategy and plan of action on public health, innovation and intellectual property" adopted at the Sixty-first World Health Assembly in resolution WHA61.21 in 2008. Governments, international organizations and other stakeholders should collaborate in implementing the global strategy and plan of action.

V. Governments should establish systems for the qualification, accreditation or licensing of traditional medicine practitioners. Traditional medicine practitioners should upgrade their knowledge and skills based on national requirements.

VI. The communication between conventional and traditional medicine providers should be strengthened and appropriate training programmes be established for health professionals, medical students and relevant researchers.
Extent of Use

- America
  - 12% general surgical
  - 55% cosmetic surgery
  - $27 billion

- UK
  - 4.8% of patient use
  - annual expenditure - £1.6 billion

- Europe
  - 40% of breast cancer patients
  - 20% of lung cancer patients
The Royal London Hospital for Integrated Medicine
Western herbal medicine

Herbal medicine is the use of plant-based medicines to promote good health and treat illness. It aims to improve the function of key body systems to restore a balanced state of health. These include the digestive system, immune system, hormonal (endocrine) organs, skin and urinary system.

Herbal medicines can be used in a wide range of conditions. They can be used alone or alongside orthodox medicine and other therapies. They may help improve mood, relieve tension, aid sleep, increase energy and sense of well-being.

**How does herbal medicine work?**

Herbal medicines act in a similar way to using plants as food — they nourish and sustain the body as well as treating illness. Treatment is tailored to the individual, by assessing aspects of diet, lifestyle and behaviour which may contribute to the illness and where necessary, a herbal prescription.

Herbal medicine is very safe when prescribed by a competent practitioner with good medical and herbal knowledge using medicines from a reputable source.

**About the service**

The service is led by a medically qualified consultant physician and pharmacist with additional qualifications in herbal medicine.

**What should I expect when I come to my appointment?**

The first appointment will take 40 minutes. The doctor will take a detailed medical and dietary history. They will do a physical examination and order any necessary investigations such as blood tests or scans. Follow-up appointments take around 20 minutes and are usually one to three months after your first appointment. The doctor may adjust your medication at these appointments.

Herbs generally work more slowly than orthodox drugs and may take from a few weeks to months to have a significant effect. Your doctor will talk to you about how much significant benefit you can expect before the start of treatment. How successful the treatment is will depend on your general health and the type and severity of the condition.

**Your herbal medicine**
The Chinese mothers who won't go outside after giving birth

By Amber Haque
BBC Victoria Derbyshire programme

"Postnatal confinement" - where new mothers do not leave the house, have visitors or shower for a month after giving birth - is said to be widespread among the UK's Chinese community. Experts warn that few in the medical profession know this occurs.

"Being confined in your flat is important," says Ching, from her home in London that she has not left since giving birth 28 days earlier.
The Issues
Alternative journals

- Alternative and Complementary Therapies
- BMC Complementary and Alternative Medicine
- Complementary Therapies in Clinical Practice
- Complementary Therapies in Medicine
- EPMA Journal. The Official Journal of the European Association of Predictive, Preventive and Personalised Medicine
- European Journal of Integrative Medicine
- Evidence-Based Complementary and Alternative Medicine (eCAM)
- Explore: The Journal of Science and Healing
- Integrative Cancer Therapies
- Journal of Evidence-Based Complementary & Alternative Medicine
- The Journal of Alternative and Complementary Medicine
Cochrane Database of Systematic Reviews: Issue 11 of 12, November 2017

Issue updated daily throughout month

There are 164 results from 10010 records for your search on 'herbal in Title, Abstract, Keywords in Cochrane Reviews'
Efficacy and Safety of Combination Therapy of Shenfu Injection and Postresuscitation Bundle in Patients With Return of Spontaneous Circulation After In-Hospital Cardiac Arrest: A Randomized, Assessor-Blinded, Controlled Trial*

Qian Zhang; Chunsheng Li; Fei Shao; Lianxing Zhao; Miaomiao Wang; Yingying Fang
$p=0.02$ by Log-rank test
YellowCard
It's easiest to report online at www.yellowcard.gov.uk

COMMISSION ON HUMAN MEDICINES (CHM)

MHRA

SUSPECTED ADVERSE DRUG REACTIONS

If you suspect an adverse reaction may be related to one or more drugs/vaccines/complementary remedies, please complete this Yellow Card. See 'Adverse reactions to drugs' section in BNF or www.yellowcard.gov.uk for guidance. Do not be put off reporting because some details are not known.

**PATIENT DETAILS**

<table>
<thead>
<tr>
<th>Patient Initials:</th>
<th>Sex: M / F</th>
<th>Ethnicity:</th>
<th>Weight if known (kg):</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Age (at time of reaction):</th>
<th>Identification number (e.g. Your Practice or Hospital Ref):</th>
</tr>
</thead>
</table>

**SUSPECTED DRUG(S)/VACCINE(S)**

<table>
<thead>
<tr>
<th>Drug/Vaccine (Brand if known)</th>
<th>Batch</th>
<th>Route</th>
<th>Dosage</th>
<th>Date started</th>
<th>Date stopped</th>
<th>Prescribed for</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**SUSPECTED REACTION(S)**

Please describe the reaction(s) and any treatment given:

<table>
<thead>
<tr>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recovered</td>
</tr>
<tr>
<td>Recovering</td>
</tr>
<tr>
<td>Continuing</td>
</tr>
<tr>
<td>Other</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date reaction(s) started:</th>
<th>Date reaction(s) stopped:</th>
</tr>
</thead>
</table>

Do you consider the reactions to be serious? Yes / No

If yes, please indicate why the reaction is considered to be serious (please tick all that apply):

- Patient died due to reaction
- Life threatening
- Congenital abnormality
- Medically significant; please give details:

- Involved or prolonged inpatient hospitalisation
- Involved persistent or significant disability or incapacity
ADVERSE DRUG REACTIONS

Reports received

Year '00 '02 '04 '06 '08 '10

25,000
20,000
15,000
10,000
5,000
0

24,300
18,600
439

Where last year’s reports came from

Polyclinics: 54.4%
Public hospitals: 39.4%
Pharmaceutical companies: 3.1%
Others (such as retail pharmacies): 1.6%
Private clinics and hospitals: 1.5%

Source: Health Sciences Authority
Unknown Risks

Adverse reactions to injectable Chinese medicine doubled since 2011

- Total cases

Source: Annual adverse reaction reports by China Food and Drug Administration
Some usual suspects
Echinacea
(Echinacea Pururea)
St Johns Wort (Hypericum perforatum)
Ephedra (Ephedra Sinica)
Garlic (Allium sativum)
Spontaneous Spinal Epidural Hematoma with Associated Platelet Dysfunction from Excessive Garlic Ingestion: A Case Report


Department of Surgery, Pontiac General Hospital (KDR, PDC, CFP), and Department of Surgery, St. Joseph Mercy Hospital (PDC, MBL), Pontiac, Michigan
ginseng (panax ginseng)
North Korea offers to pay in ginseng

BY OUR CITY STAFF | WEDNESDAY 11 AUGUST 2010

North Korea may be a relatively communist economy, but it has certainly got the hang of the sort of bartering that lies at the heart of capitalism. How does it reconcile the fact that it is short on the funds to make its latest debt repayment to the Czech Republic? By offering to pay in ginseng rather than cash, of course.

The Czech government yesterday confirmed reports in its newspapers that it had received a novel offer from the regime in Pyongyang, with whom it did a roaring trade during its own Communist past. The Koreans still owe it the equivalent of $10m from those days and wondered if the Czechs would accept $500,000 of ginseng, the invigorating herb, as a downpayment. Sadly for them, the Czechs are now asking for North Korean zinc instead.
Practicalities – real world truths
Canadian Anesthesiologists' Society
Can I take herbal and dietary supplements?

The use of herbal medicines is common. Herbal medicine is defined as a plant-derived product used for medicinal and health purposes; commonly used herbal supplements include echinacea, garlic, ginseng, ginkgo biloba, St John’s wort and valerian.

Herbal medicines can have a variety of effects on surgery and interact with anaesthetic drugs. Ginkgo, ginseng and garlic all impair blood clotting and promote excessive bleeding. Prolongation of action of anaesthesia drugs can occur with valerian and St John’s wort. **Herbal dietary supplements should be stopped two weeks prior to surgery.**

Fish oil supplements are also popular as a dietary supplement. They have potential in reducing cholesterol and hence may reduce the risk of heart attack and stroke. They also have anti-inflammatory properties and may be used to treat arthritis. The Therapeutic Goods Administration says that omega 3, which is found in fish oil, has no effect on bleeding and can be continued before surgery.
<table>
<thead>
<tr>
<th>BRAND NAME</th>
<th>COMMON NAMES</th>
<th>SCIENTIFIC NAME</th>
<th>COMMON USES</th>
<th>POSSIBLE SIDE EFFECTS OR DRUG INTERACTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Echinacea</td>
<td>Purple Cone Flower</td>
<td>Echinacea purpurea</td>
<td>Common colds, Wounds and burns, UTI, cancer, infections, Cushing's and Addison's</td>
<td>May cause gastritis, especially when used with other anti-inflammatory drugs, i.e., salicylates or aspirin. May also see decreased effectiveness of corticosteroids.</td>
</tr>
<tr>
<td>Ephedra</td>
<td>Ma-Huang, Ephedrine, Chinese Joint Ft</td>
<td>Ephedra sinica</td>
<td>Over-the-counter diet aids, Beta-adrenergic, Antioxidant</td>
<td>Heart problems, hypertension, cardiac arrest, arrhythmia. Increased sympathetic effects. Monoamine oxidase inhibitors (MAOI): enhanced sympathetic effects. Chronic hypertension.</td>
</tr>
<tr>
<td>Feverfew</td>
<td>Feverfew, Featherfoil, Midsummer Daisy</td>
<td>Tanacetum parthenium</td>
<td>Magnesium, phytochemical, Antifungal</td>
<td>Can inhibit platelet activity and increase bleeding. Avoid use in patients on warfarin or other anticoagulants; may enhance bleeding. Rebound headache with sudden cessation; 5-15% of users develop nipple pain or genital external tissue irritation.</td>
</tr>
<tr>
<td>Ginkgo, RO and GHB</td>
<td>Ginkgo, RO, GHB (abbreviations for herbal)</td>
<td>Ginkgo biloba</td>
<td>Bodybuilding, Weight loss aid, Sleep aid, Nerve damage, Alzheimer's, Depression, Stress, Oxidative stress.</td>
<td>May potentiate warfarin; may increase INR (PT). May decrease effectiveness of certain NPY promotor inhibitor drugs, e.g., captopril.</td>
</tr>
<tr>
<td>Gotu Kola</td>
<td>Gotu Kola, Aps</td>
<td>Alstonia scholaris</td>
<td>Lipid lowering, Blood pressure lowering, anti-oxidant, anti-oxidant, and anti-inflammatory qualities</td>
<td></td>
</tr>
<tr>
<td>Guggul</td>
<td>Black Guggul, African Guggul</td>
<td>Zingiber officinale</td>
<td>Antioxidant, Antispecies</td>
<td>Potent inhibitor of cholesterol synthesis; may increase cholesterol levels. Use caution when taking warfarin; may cause excessive bleeding.</td>
</tr>
<tr>
<td>Garlic</td>
<td>Red Marble, Red Root</td>
<td>Emblica officinalis</td>
<td>Circulatory stimulus</td>
<td>May enhance bleeding in patients on anticoagulant or antithrombotic therapy, i.e., aspirin, NSAIDs, warfarin, heparin.</td>
</tr>
<tr>
<td>Ginseng</td>
<td>American Ginseng, Chinese Ginseng, Korean Ginseng</td>
<td>Panax ginseng</td>
<td>Adaptoxic, anti-fatigue enhancer in athletes, Antioxidant</td>
<td>Ginseng Abuse Syndrome (&gt;1 g per day): shyness, hyperpigmentation, insomnia. Avoid use with other stimulants may see sudden death or hypertension. MoodSwings, Post-menopausal bleeding. May cause nausea in patients on phenytoin. May have multiple effects causing increased bleeding, particularly in patients on anticoagulant and antithrombotic agents.</td>
</tr>
<tr>
<td>Goldenseal</td>
<td>Turkish Root, Yellow Root, Ground Raspberry, Tonomint Root, Root Root</td>
<td>Hydrastis canadensis</td>
<td>Diuretic, Anti-inflammatory, Expectorant, Hemostatic</td>
<td>Functions as an antiseptic. Overuse may cause purgative (amount not known). Functions as an astringent, not a diuretic (no sodium content, just tannin content). May cause stomach cramps and/or ulceration.</td>
</tr>
<tr>
<td>Licorice</td>
<td>Licorice Root, Sweet Root</td>
<td>Glycyrrhiza glabra</td>
<td>Glycogen synthesis in liver may cause high blood pressure, hyperkalaemia and edema. Contraindicated in many chronic liver conditions, renal insufficiency, hyperkalaemia.</td>
<td></td>
</tr>
<tr>
<td>Saw Palmetto</td>
<td>Saw Palmetto, Saw Palmetto, Saw Palmetto, Saw Palmetto, Saw Palmetto</td>
<td>Serenoa serrulata</td>
<td>BPH treatment, AUR, prostatic hyperplasia</td>
<td>May cause prostate enlargement. May also cause toxic effects in the brain. May cause birth defects in overweight children.</td>
</tr>
<tr>
<td>St. John's</td>
<td>St. John's Wort, Hypericum perforatum</td>
<td>Hypericum perforatum</td>
<td>Treatment for depression and anxiety</td>
<td>May decrease effectiveness of all currently marketed H1 antihistamine and nonsteroidal antinflammatory drugs, St. John's Wort may also potentiate the effects of methotrexate. Bacterial infection: may potentiate the effects of methotrexate (methotrexate: hypokalemic, hypomagnesemic, hypomagnesemic).</td>
</tr>
<tr>
<td>Valerian</td>
<td>All-Brom, Sixval, Valhalla Root</td>
<td>Valeriana officinalis</td>
<td>Mild sedative, Mild anxiolytic</td>
<td>Will likely potentiate barbiturate effect. May decrease symptoms of benzodiazepine withdrawal (benzodiazepine-like effects but different receptor).</td>
</tr>
<tr>
<td>Vitamin E</td>
<td>Vitamin E</td>
<td>Vitamin E</td>
<td>To slow aging process, Prevention of stroke and pulmonary embolism, Prevention against osteoarthritis, Prevention of wound healing, Efficacy against hypercholesterolemic breast syndrome</td>
<td>May increase bleeding, particularly in conjunction with other anticoagulant and anti-inflammatory drugs. May affect thyroid function in otherwise healthy patients. May enhance hypension in hypertensive patients in doses &gt;800 IU per day.</td>
</tr>
</tbody>
</table>
It is important for you to bring a list of:

- "all the pills, medicines, herbal remedies or supplements you are taking, both prescribed and those that you have purchased over the counter"

- "If you are taking medicines, you should continue to take them as usual, unless your anaesthetist or surgeon has asked you not to. For example, if you take drugs to stop you getting blood clots (anticoagulants), aspirin, drugs for diabetes or herbal remedies, you will need specific instructions."
British association of Day Surgery (BADS)

Excellence in short stay surgery
<table>
<thead>
<tr>
<th>Herbal Medicine</th>
<th>Uses</th>
<th>Pharmacological Effects</th>
<th>Perioperative Considerations</th>
<th>Discontinuation Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Echinacea</td>
<td>Improve immune system</td>
<td>Modulates cytokines, stimulate macrophages and NK cells</td>
<td>Avoid known hepatotoxic drugs</td>
<td>No data available. Discontinue 2 weeks prior to surgery.</td>
</tr>
<tr>
<td>Ephedra</td>
<td>CNS stimulant, weight loss, asthma treatment</td>
<td>Sympathomimetic</td>
<td>Caution with other sympathomimetic, arrhythmias with halothane</td>
<td>Discontinue 24 hours prior to surgery</td>
</tr>
<tr>
<td>Garlic</td>
<td>Treatment of hypertension, hyperlipidaemia, atherosclerosis</td>
<td>Anti-platelet effects</td>
<td>Risk of bleeding</td>
<td>Discontinue 7 days prior to surgery</td>
</tr>
<tr>
<td>Gingko biloba</td>
<td>Neuroprotective, improve blood flow</td>
<td>Free radical scavenger, anti-platelet effects</td>
<td>Risk of bleeding</td>
<td>Discontinue 36 hours prior to surgery</td>
</tr>
<tr>
<td>Ginseng</td>
<td>Mood enhancer, aphrodisiac</td>
<td>Sympathomimetic</td>
<td>Risk of bleeding, hypoglycaemic effect, caution with other sympathomimetic</td>
<td>Discontinue 7 days prior to surgery</td>
</tr>
<tr>
<td>Kava</td>
<td>Sedative, anxiolytic</td>
<td>Potentiate GABA-ergic system</td>
<td>Reduce anaesthetic requirements</td>
<td>Discontinue 24 hours prior to surgery</td>
</tr>
<tr>
<td>St John’s Wort</td>
<td>Antidepressant</td>
<td>Inhibit MAOIs, induce cytochrome p450</td>
<td>Serotonergic crisis, sedative effect</td>
<td>Discontinue 5 days prior to surgery</td>
</tr>
<tr>
<td>Valerian</td>
<td>Anxiolytic, hypnotic</td>
<td>Potentiate GABA-ergic system</td>
<td>Reduce anaesthetic requirements</td>
<td>No data available. Discontinue 2 weeks prior to surgery.</td>
</tr>
</tbody>
</table>
“Current” UK practice

- McKenzie and Simpson - Survey of AAGBI members (2005)
  - 90% - never or seldom asked about herbal medicines
  - 65% - thought there could be potential harm
  - 75% - perioperative usage of herbal medicine is important
  - “Unequivocally” poor knowledge

- Hogg and Foo - Survey of all anaesthetic dept (2010)
  - 7.3% have perioperative herbal medicine policy
  - 98.3% did not have specific section documenting herbal medicine use
  - 15.7% routinely asked about herbal medicine use
  - Highly variable advice given (not in accordance to existing guidelines)
Appendix 9: Guidance of Pre-Operative Medication Management

Appendix 9-1 Perioperative management of medicines 2016.docx

Appendix 10: Herbal Medicines with potential peri-operative complications.

Disclaimer:
This guideline is believed to be an accurate reflection of the most current evidenced based literature available at time of composition. It is intended to be used as a guide only. Users are advised to always consult medical literature and take into account any new developments. Always relate the information provided to the individual clinical situation.

Background:
The use of natural medicines in the UK is extensive. Many patients do not consider these products to be drugs or medication and often do not disclose their use to health providers. As a result there is a risk that patients may take these products in the perioperative period without healthcare providers knowledge.

Purpose:
Many natural medicines have pharmacological effects that have the potential to interfere with surgical procedures. Therefore, assessment of natural medicine use is an important aspect of perioperative assessment. Patients should be asked specifically about their use of herbs, vitamins, minerals, or other natural or alternative products. Advise patients to discontinue taking all non-essential natural medicines two weeks before an elective surgery procedure. Some products may not be discontinued in advance; however, these are rare, with the exception being those which have been found to cause a particular pharmacological effect or the half-life of those constituents (ref 1).

Below is a list of herbal medicines known to have pharmacological effects which could adversely affect surgery. Advise patients to stop taking any preparation with these ingredients two weeks prior to surgery (ref 1-4).

Constituent & Reason why it should be stopped:

- 5-HTP: Has anti-depressant properties; treat as an SSRi. Caution with pethidine use.
- Agrimonia eupatoria: Pro-oestrogenic; could increase thrombus risk. Dopamine agonist. Treat as haloperidol or clozapine.
- Agrimony: Clinical evidence of hypotensive effects. Clinical research suggests hypoglycaemic effects.
- Alfalfa: Immunomodulating properties. Possible increased risk of infection and poor wound healing. Pro-oestrogenic; could increase thrombus risk. Clinical research suggests hypoglycaemic effects.
- Alpha-lipoic acid: Clinical research suggests hypoglycaemic effects.
- Anatoxop. Preliminary evidence of hypotensive effects.
- Aspirin: Pro-oestrogenic; could increase thrombus risk. Symptomatic; can cause hypertension, tachycardia and arrhythmias.
- Arnica: Anticholinesterase action; bradycardia, hypotension, bronchoconstriction.
- Azoaphenone: Clinical evidence of hypotensive effects.
- Azelaic acid: Clinical evidence of hypotensive effects.
- Bambusa: Clinical research suggests hypoglycaemic effects.
- Banayan: Minocycline related; could increase blood pressure.
- Bilberry: Antiprotein; increases bleeding risk.
- Bitter melon: Clinical research suggests hypoglycaemic effects.
- Bitter melon: Structurally related to phenylalanine. Can predispose the patient to stroke, myocardial infarction, arrhythmia from tachycardia and hypertension. May interact with MAOIs. Avoid a minimum of 24 hours pre-op.
- Black cohosh: Pro-oestrogenic; could increase thrombus risk.
- Black tea: (concentrated tablets). Large quantities of caffeine in black tea can have antiprotein effects. Increased bleeding risk.
- Blue cohosh: Clinical research suggests hypoglycaemic effects.
- Bõtia: Anticoagulation effect; increased risk of bleeding. Can potentiate the effects of warfarin.
- Comic acid: Immunomodulating properties. Possible increased risk of infection and poor wound healing.
- Broom: Hypertensive; potential to raise blood pressure. Potential cardiac dopaminergic activity.
- Bute: Clinical research suggests hypoglycaemic effects.
- Butterbur: Clinical evidence of hypotensive effects.
- Casein: Immunomodulating properties. Possible increased risk of infection and poor wound healing.
- Cascara senna: Clinical evidence of hypotensive effects.
- Cat's claw: Antiprotein; increases bleeding risk. Clinical evidence of hypotensive effects. Immunomodulating properties. Possible increased risk of infection and poor wound healing.
- Celery: Clinical research suggests hypoglycaemic effects.
- Centaury: Sedative effect.
- Chamomile: Immunomodulating properties. Possible increased risk of infection and poor wound healing. Mild sedative effects; could potentiate anesthetics.
- Chondroitin: Anticoagulation effect; increased risk of bleeding. Can potentiate the effects of warfarin. Also effects blood sugar control.
- Clove: Antiprotein effect; increases bleeding risk.
- Coenzyme Q10: Clinical research suggesting modest hypotensive effects.
- Cola: Stimulant. Increased risk of tachycardia and hypertension.
- Colitis: Vasopressor activity causes hypertension.
- Com S: Clinical evidence of hypotensive effects. Clinical research suggests hypoglycaemic effects.
- Croscarpin: Clinical evidence of hypotensive effects. Clinical research suggests hypoglycaemic effects.
- Cuscuta: Clinical research suggests hypoglycaemic effects.
- Damiana: Anticoagulation effect; increased risk of bleeding. Can potentiate the effects of warfarin.
- Devil's claw: Clinical research suggests hypoglycaemic effects.

Clinical evidence of hypotensive effects.
Summary

• Growing, global issue
• Not completely safe
• Ask (for the mark)
• 2 weeks stop
  • Most are safe with regards to doses