Clinical aspects of herb-drug interactions

Yaso Shan examines the issues around herb-drug interactions

Increasing and ready availability of herbal remedies and supplements may be meeting the almost overwhelming public demand, but it has also exposed the issue of herb-drug interaction, an area that suffers from lack of rigorous study and discussion within the scientific community.

Existing figures of herb-drug interaction are questionable since current literature and scientific research data are scant and mostly limited to studies conducted in animal models (Table 1). This is compounded by the lack of legal measures and control over the prescribing of herbal medicines, and the fact that not all patients inform their health practitioner of concomitant administration – a practice which only increases the potential for herb-drug interactions.

Close examination and dissemination of the data on known risks and interactions, from the few studies that do exist, would appear to be the most straightforward solution. However, this might make little difference to clinical practice.

For example, recent evidence suggests that popular remedies such as St John's Wort (taken for mild to moderate depression) react dangerously with warfarin among other drugs (Smith *et al* 2004). Yet one research paper claimed that more than 90 per cent of patients prescribed warfarin were not asked by their GP if they were taking any complementary therapies even though one in five were taking herbal remedies (Smith *et al* 2004).

It is likely that similar statistics exist for other popular herbal medicines such as ginkgo, ginseng, valerian, garlic, echinacea or ginger, and commonly prescribed drugs such as aspirin, hypotensives and antibiotics, so it is important that the public is made aware of the risks of self-medication with herbal supplements if they already take prescription drugs.

But it is also important that conventional medics and herbal practitioners become familiar with the risk of herb-drug interaction. Qualified practitioners of herbal medicine are more likely to be familiar with the action and potency of herbal medicines than medical practitioners, but awareness of the risks in both professions remains poor.

Lack of scientific data

Before Western herbal medicine achieved its present popularity, particularly in the UK, there was less concern about possible interactions between herb and prescription drugs. Any cases of adverse reactions or interactions that did occur were attributed to errors in dosage, inappropriate administration, or poor patient education on concomitant use – and the situation has not changed. Trying to ascertain an accurate number of cases of herb-drug reactions or interactions is still extremely difficult.

There appears to be extensive research on the therapeutic benefits of herbs but no scientific data

Table 1. Types of evidence used to assess herb-drug interactions

Type of study	No. (and %) of interactions
Animal trials	28 (19.5)
Speculative	27 (18.9)
Empirical	26 (18.2)
Human case reports	15 (10.5)
Human studies	36 (25.2)
Human clinical trials	11 (7.7)
TOTAL	**143 (100)**

(Adapted from Blumenthal 2000)

for incidence of herb-drug interactions in the UK. This is also the case for drug-drug interactions (Fugh-Berman, 2000) – published clinical studies are mainly case reports, simply because controlled trials are scarce since the random assignment of patients to trials that examine unintended effects is unethical.

Although the evidence from the sort of studies listed by Blumenthal (2000) (Table 1) indicates there is a problem, the data cannot be simply accepted as fact, partly because clinical monitoring of herbal prescriptions is not as rigorous as conventional drugs, and partly because clinical audits of herbal medical practice are rendered inaccurate and invalid in conventional science.

This is due to the fact that:

- concentrations of active constituents (AC) can vary considerably between brand, preparation, harvesting and processing
- the standard and quality of herbal preparations can vary due to the presence of adulterants in some preparations, and adjuvants, binders, bulking agents and excipients in others.

It is possible that it is these ingredients, rather than the herb itself, that causes reactions with conventional drugs, therefore there would have to be an extensive study of numerous types of preparations as well as thorough quality assurance testing under the same guidelines as conventional drug pharmacy

It may be that clinical audit of herbal medicines is entirely irrelevant since, as a therapy, herbal medicine relies exclusively and fundamentally on individual focus, the concept of holism and synergy of active plant ingredients. The lack of standardisation in herbal preparations leads to variable concentrations of active ingredients that can be accounted for, but makes it difficult to ensure parity of product quality.

As much as a clinical audit is almost impossible under such parameters, so too is prediction of possible adverse interactions, because:

- predicting sensitivities to any type of medicine is difficult until it has been previously reported and established in significant numbers of any given patient population
- content of herbal preparations vary with each individual patient and dictates the manner in which they will respond and their general sensitivity
- the patient's physical and mental health impacts on possible reaction/interaction
- timing of administration and hormonal fluctuations may also determine a herb-drug interaction.

Education

Despite the lack of rigorous scientific studies, good reference compilations of herb-drug interactions do exist (Brinker 1997, Low Dog 2002) which offer a valuable guide to conventional and herbal clinicians.

But there is a need for a definitive and comprehensive dossier of all known and potential herb-drug interactions comparable to the BNF and for a prescribing protocol based on reported herb-drug reactions. Current reference guides are not comprehensive because much of the data is based on evidential reporting and not rigorously assessed or tested as it is within conventional pharmacology.

The usefulness of the data from existing clinical studies remains debatable, but it can serve as a starting point in attempting to establish risk and set guidelines for a prescription protocol. Reports from such clinical studies could form the basis of a theoretical framework for identifying potential reactions based on similar pharmacological patterns of interaction.

There is much to discover about herb-drug interactions, and the first step may be to create a forum of all relevant professionals from herbal and conventional medicine to question and begin to challenge accepted scientific rationale and thinking.

Public perception of herbal remedies as safe, at any dose, and the fact that patients do not always inform their GPs of concomitant use, has to change, and this requires a co-ordinated effort between relevant professionals, including pharmacists to educate themselves and the public, and to disseminate proper information to ensure safe practice ■

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