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Herbal drug interaction: A matter of concern

Sandeep K Singh, Swaha Satpathy and Arjun Patra
Guru Ghasidas Vishwavidyalaya, India

With the increasing use of herbal medicinal products (HMPs) in the community where people are also receiving prescription medicines suggests that adverse herb-drug interactions may be of significant public health related problems. Due to the extensive use of HMPs and other dietary supplements healthcare professionals and patients need to know whether problems might arise from using these preparations in combination or with conventional drugs. However, the chance of herb-drug interactions is of concern, especially in the lack of warning labels addressing potential adverse effects. Drug-herb interactions are based on the same pharmacokinetic and pharmacodynamic phenomenon as drug-drug interactions, through induction of cytochrome P450 enzymes and/or P-glycoprotein. The clinical importance of herb-drug interactions depends on several impacts associated with the specific herb, drug and patient. To examine the pharmacokinetics and adverse effects of HMPs, as well as clinical evidence of herb-drug interactions, electronic research were conducted in multiple databases, including MEDLINE, EMBASE, the Cochrane Library, CINAHL, NAPRALERT, International Pharmaceutical Abstracts, CANCERLIT, CISCOR, and HerbMed. Keywords used include scientific/vernacular/traditional names, and synonyms for the herbs and their active constituents. Some HMPs (e.g. St John's wort, Ginkgo, Liquorice, etc.) have been shown to lower the plasma concentration (and/or the pharmacological effect) of a number of synthetic as well as traditional remedies including cyclosporine, indinavir, irinotecan, nevirapine, oral contraceptives and digoxin. Few interesting and important examples are: drugs with anticoagulant activity (e.g. warfarin, aspirin) were frequently implicated in herb-drug interactions, with documented interactions with over 30 herbs and herbal products. Significant cases of herb-drug interactions include: bleeding when warfarin is given with ginkgo (*Ginkgo biloba*), garlic (*Allium sativum*); mild serotonin syndrome in patients who mix St John's wort (*Hypericum perforatum*) with serotonin-reuptake inhibitors; decreased bioavailability of digoxin, theophylline, and cyclosporin, when these drugs are given with St John's wort; induction of mania in depressed patients who mix antidepressants and Panax ginseng; potentiation of oral and topical corticosteroids by liquorice (*Glycyrrhiza glabra*); and decreased concentrations of phenytoin when combined with the Ayurvedic syrup shankhapushpi. Anthranoid-containing plants (including senna [*Cassia senna*] and cascara [*Rhamnus purshiana*]) and soluble fibers (including guar gum and psyllium) can decrease the absorption of drugs. Very little information is obtained from clinical studies and controlled trials, so the relevance of such information in terms of clinical aspects is questionable. Documentation of herb-drug interactions using pertinent and remarkable guidelines and protocols is the need of the hour. However, the evidence of interactions between natural products and drugs is based on known or suspected pharmacologic activity, data derived from *in vitro* or animal studies, or isolated case reports which frequently lack pertinent information. In the absence of further extensive studies to qualify the clinical significance of herb-drug interactions, evidence based monitoring of the current literature is essential to guide practitioners involved in patient care.

swaha22@rediffmail.com