Herb-drug interaction

Editorial Article

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Recent epidemiological reports indicate that nearly 80% of the global population incorporates complementary and alternative medicine into their healthcare practices. Herbs are frequently self-administered concurrently with therapeutic drugs. Consequently, clinicians are advised to proactively gather information regarding herb-drug combination in their patients and establish monitoring protocols, particularly for individuals with habitual and concurrent herbal consumption. Herbal products can competitively inhibit cytochrome P450 (CYP) isoenzymes, potentially elevating blood levels of prescription medications and exposing patients to the risk of adverse effects. Studies by Bailey et al. (1991,1998) revealed the modification of felodipine biotransformation in the presence of grapefruit juice. Recent investigations further suggest that herbal products may induce both pharmacodynamic and pharmacokinetics interactions of pharmaceuticals.

The majority of drugs, herbal products and food constituent undergo are metabolism mediated by CYP enzymes. Interactions between herbal product and prescription drugs, manifested as co-medication, encompass the inhibition or induction of metabolizing enzymes and drug efflux proteins, such as P-glicoprotein (P-gp) and multiple resistance proteins (MRPs). The chemical structure of active herbal ingredient significantly modulates drug efflux and metabolism. Adverse effects may arise from the concominant use of herbal products with therapeutic drugs, owing to the alteration of drug metabolism and efflux pathways. Numerous herbal products demonstrate the capacity to induce or inhibit CYP isoenzyme, thereby influencing the metabolism of a broad spectrum of drugs. Predominant among the isoenzymes responsible for the biotransformation of herbal products are CYP3A4/5 and CYP2D6. CYP3A4 metabolizes more than 50% of presently administered therapeutic drugs.

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In the recent years, extencive investigation into herb-drug interaction have primarily concentrated on elucidating the pharmacokinetic and pharmacodynamic effects associated with anticancer, anti-HIV, cardiovascular, antidiabetic, antihypertensive, antibiotic, and neuropsychiatric medications. However, there remains a substantial need for augmented data derived from comprehensive case reports, in vitro and in vivo studies as well as clinical trials, focusing on the coadministration of naturel products alongside conventional drugs. Moreover, the establishment of a phytovigilance database stands as a prospective initiative for systematically cataloging herb-drug interactions. Notably, the FDA Adverse Event Reporting System (FAERS) and the Center Adverse Event Reporting System (CAERS) emerge as pivotal conduits for sourcing critical information pertaining to herb-drug interactions.