Potential Adverse Interactions Between Allopathic Drugs, Herbals and Dietary Products: Mechanisms of Action and Clinical Implications

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Introduction

In the beginning of the 19th century, allopathic or synthetic medicines became the primary mode of treatment. Fortunately in the 21st century, there are many choices for treating communicable and non-communicable diseases with synthetic pharmaceuticals, alternative remedies, Natural Health Products (NHPs) and dietary supplements. Inspite of the enormously rapid development of new drug discoveries made in the field of allopathy, plant-derived products, Ayurvedic remedies, and Chinese medicines still remain the major sources of therapy in the developing countries. Self-therapy with nutraceuticals is also becoming popular globally among the lay population. According to the WHO statistics of 2008, around 80% population in developing countries relies on traditional plant-derived remedies, and such traditional medicines make around 25% market share of the entire pharmacotherapy cache [1].

With the changes in modern lifestyle, sedentary habits, and excessive availability of fast foods/drinks loaded with large amounts of sugar, the incidences of obesity and type 2 diabetes as well as cardiovascular and musculoskeletal diseases have escalated in both developed and developing countries. Multiple drug therapy is often needed for treating the cardiovascular diseases and the co-morbid chronic conditions, especially in the elderly population. Overwhelming majority of presently used synthetic drugs are metabolised by CYP3A4 and CYP2D6.

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Received: February 22, 2016; Accepted: February 27, 2016; Published: March 14, 2016

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gastrointestinal tract and liver [6]. The main biologically active ingredients (hypericin, hyperforin) of St. John’s wort, a popular herbal medicine used for treating mild depression, anxiety and insomnia, are known to elevate the action of antidepressants, especially SSRI type of drugs (e.g., paroxetine). Coriander (Coriandrum sativum) enhances the effects of hypoglycaemic agents [7].

In summary, herb-drug and diet-drug interactions are considered one of the leading causes of patient morbidity and mortality. Before prescribing an allopathic medication, physicians should enquire whether their patients are consuming an interacting diet or herbal product and either instruct their patients to stop consuming such products or adjust dosage to compensate for drug-diet or drug-herbal effects [8]. Collaborative efforts are required from patients, physicians, and pharmacists as well as industry (drug manufacturers, suppliers of herbals, food, and nutraceuticals) to minimize or possibly prevent any potential risks associated with the concomitant use of natural health products, herbal remedies, dietary supplements and interacting allopathic drugs.

This commentary is meant to highlight the mechanisms of drug-herb/food interactions, clinical outcomes, and the regulatory initiatives (post-market surveillance and labelling changes) being taken by regulatory agencies in Canada, America, Europe, Japan and Australia to meet the challenges associated with rapidly emerging area of drug-herb-diet interactions. Hopefully, Drug & Food Regulators and physicians in Asia and other developing countries will also pay attention to potential ADRs and clinical implications that can occur by the combined oral administration of allopathic drugs, herbs and dietary products [9].

References