



Review Article

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Critical analysis of Herb-drug interaction and lifestyle disorders

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ABSTRACT

Life stable disease or lifestyle disorder exists in the world since the last century. Socioeconomic advancements, globalization and blurring geographies for trade are the most common causes. Although advances in medicine have eradicated most of the diseases were based on Germ theory that was prevalent in the last century, Present generation has coped with a fresh set of diseases, creatively called “lifestyle diseases” or “Lifestyle disorder” as the name itself suggests, the change in diet and lifestyle are the major causes of these diseases. A study conducted by The Harvard School of Public Health has described that India will lose around \$6.2 trillion during the period 2012-30 by lifestyle maladies. And the size of the world Herbal drug market is 83 billion dollars in 2008 and grown to three trillion US dollars in 2050. In spite of such wide acceptability, Herb-drug interactions are the most common lifestyle diseases.

Keywords: Lifestyle, Herb, Herb-drug interactions.

INTRODUCTION

The man still struggling to cope with ill health either somatic one or psychological one because of lifestyle. Lifestyle is an unavoidable reality and plays a crucial role in the global demographic transition. Progress in Medical science and Longevity is a spectacular achievement of our country. This development did not give the solution for all questions in health care delivery. The 80% of India’s 1.2 billion population and Millions of people worldwide today using herbal as well as Ayurvedic therapies along with prescription and non-prescription medications with a preoccupied thought that they are free from side effect in the healthcare industry. Last century we observed a dramatic shift from communicable to Lifestyle disorders like osteoarthritis, osteoporosis, diabetes, cardiovascular diseases, hypertension, obesity, Parkinson’s disease, etc. This result in a dramatic increase in the usage of the use of herbal medications. At present approximately 18% of people, who take prescription drugs also use herbal supplements¹.

Currently, there is very little information published on herb-drug interactions, whereas the use of herbs is progressively growing across the world. Almost one-third of current users of herbal medicines were at risk of a herb-drug, drug-drug as well as food-drug interactions²⁻⁶. The herb-drug interactions is not a chemical reaction between a drug and a herb component to result in something toxic. But it is the interaction may involve having a herb component cause either an increase or decrease in the amount of drug in the bloodstream i.e. in plasma concentration. It may be Negative drug-herb interactions or positive interactions. A drug interaction is defined as any modification caused by another exogenous chemical (drug, herb or food) in the diagnostic, therapeutic or other action of a drug in or on the body. But the main problem with the use of herbal medicines is constituted lifestyle, body constituents and spiritual teachings beyond the reach of conventional one⁷. It is right to say that some of the treatment modalities in conventional medicine have not been rigorously tested⁸. There are many potential interactions between herbs and prescription drugs, only a few of which are discussed here,

Ginseng (BN- *Ginkgo biloba*)- Generally ‘Ginseng’ belongs to the family Araliaceae, and is the dried root of various species of the plant genus Panax like Panax ginseng, Panax japonicus, and Panax notoginseng. Ginseng cultivated in China commonly used as a concentration enhancer. The herb Ginseng may either decrease⁹ or increase¹⁰ the anticoagulant effect of warfarin. Ginseng reduces the therapeutic effect of Omeprazole¹¹. Horticulture Various research is going on the method of Farming, tissue culture, maintenance of quality, Market study etc is going on various aspects.

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It is observed that in the last century various studies conducted to find the cognitive function of Panax Ginseng. It occupies a prominent place in the herbal market. The major active constituents ginsenosides. It is used for various disease management depression, Hypertension, cardiac ischemia, hyperlipidemia antihepatotoxicity effect, arrhythmia. Anti-inflammatory, stress, antimutagenic, Antioxidant as well as an antiangiogenic agent.

Garlic (BN- *Allium sativum*)¹²- It is a large annual plant belongs to the Liliaceae family. Garlic or Lasun is one of the most common spices used in the Indian as well as western diet, There are numerous uses of Garlic mentioned in traditional classical and contemporary texts with both antagonistic and synergetic herb-drug interaction respectively. Garlic It can be used as an antioxidant, anti-inflammatory, and antimutagenic one. But it causes an increase in bleeding tendencies when it used along with an NSAID like aspirin^{14, 15}. It may also react with Vit E in high concentrations. A clinical trial suggests that garlic changes some pharmacokinetic variables of paracetamol¹³. Garlic is used as traditional medicine since 4000 thousand years for various manifestation like arthritis. In 2006 black garlic developed by Japan in 2006 with synthetic essences. Both animal and plant studies reveal that Garlic, as well as its constituents, will help in lipid metabolism and atherosclerosis. Garlic is one of the most broadly used for various research to find its advantageous effects.

St John's wort (BN- *Hypericum perforatum*). It is one of the most commonly used herbs to treat depression. It decreases serum levels of verapamil and statins^{16,17,18}. St John's wort with other antidepressants' may result in symptoms of serotonin excess like mental status changes, tremor, gastrointestinal upset and motor restlessness¹⁹.

Sallaki (BN- *Boswellia serrata*)- Indian frankincense or Salai is one of popular Ayurvedic analgesic used in Osteoarthritis. It acts by directly blocking the conversion of 5-Lipo-oxygenase into leukotrienes thus reduces inflammation, as leukotriene stimulates the supra oxide formation. Still, now no contraindication reported^{20,21,22}.

Licorice (BN- *Glycyrrhiza glabra*)- Licorice is granny's recipe to treat a cough. Hypokalemia has been reported in some cases after the intake of licorice a herbal memory enhancer²³. Licorice is used for treating stomach ulcers. As it contains Sodium may cause blood pressure, swelling or electrolyte imbalances on prolong use²⁴.

Guduchi (BN- *Tinospora cordifolia*)- deciduous Climber shrub found throughout India at higher altitude. The potent anti-inflammatory and analgesic action is mainly due to the presence of *Tinospora cordifolia* 3 and 7. But it also produces bradycardia in large doses^{25, 26}. Various research activities reveal that medicinal efficacy of *T. cordifolia* as like it acts an antioxidant antibacterial, and anticancer agents^{27,28,29,30,31} It mainly contains Polyphenols to highly responsible for its antimutagenic and anti malignant effects. Its antimicrobial property is mainly due to secondary plant metabolites like tannins, polyphenols, diterpenoid, lactones, alkaloids, and flavonoids. Antioxidants inhibit the interaction between metal and lipid through the formation of insoluble metal complexes with ferrous ion³² Macrophages are the first line immunomodulators brings Biological Response Modifiers (BRMs) so helpful in treating tumour etc³³.

Ashwagandha (BN- *Withania somnifera*) - A potent Aphrodisiac and antistress in Indian system of Medicine. It produces adaptogenic activity and acts like a Hydrocortisone. It acts synergistically when it administered with anti-anxiolytic and anti stressors²⁷.

Kava. (BN- *Piper methysticum*)- It is used to treat anxiety disorders by producing euphoria. Kava might increase alprazolam plasma, a type of benzodiazepine concentrations. It had been proved that Kava possesses dopamine receptor antagonistic properties³⁵.

Shankhapushpi (BN- *Convolvulus pluricaulis*)- As a single drug Sankhapushpi is known as the best brain vitalizer. The plant is a fulvous hairy perennial wild herb commonly found on sandy & usually founds in rocky areas under xerophytic and while leaves are linear to the quadrilateral. It contains active constituents like alkaloids convolvine, convolamine, Experimental research shows a hypolipidemic effect. It is one of four herbs used with the common name of Shankhapushpi that has traditionally been used as a improve cognitive behaviour. Shankhapushpi a drug of choice in epilepsy as well as Brain vitalizer reduces plasma phenytoin levels³⁶. It also acts as a sedative, anxiolytic and anti-depressive agent³⁷. Ayurvedic text Bhavpraksanighantu elaborately explains its properties like Medhya (Brain tonic), Vrsya (Aphrodisiac), Rasayana (adaptogenic). Its crude extract possesses pharmacological effects like neurodegenerative, antioxidant, analgesic, antidiabetic, anticatonic, and cardiovascular activity³⁸. The methanolic extract of *C. pluricaulis* reduces the levels of total cholesterol, low-density lipoprotein³⁹.

DISCUSSION

A small data reveal that More than 400 plants have been traditionally used for their hypoglycemic action⁴² of these, Aloe vera leaf juice⁴¹ the fruit of bitter melon (*Momordica charantia*) found to improve glucose tolerance without increasing insulin levels^{43, 44} but the problem lies in the increased awareness with the ageing population.

Ayurveda is the traditional science of medicine. Due to globalization and increased awareness regarding Ayurveda more People are increasingly using herbal products in combination with prescribed drugs without the advice of their doctor's Herbal drugs are safe and effective in General, people believe in. In the present study Observational, the survey method is using throw screening of various review and experimental articles published in medical index journals.

The most common problems in the Herb drug reactions are- Lack of standardization. Unknown nature of adverse reactions and drug-drug interactions. Lack of information, studies regarding dose, route of administration etc. related to co-administered drug⁴⁵.

CONCLUSION

Physicians should go through the complete medical history of their clients. Otherwise, herbal medicines may potentiate synergistically or antagonistically the adverse drug effects of preexisting treatment regimens. The most common cause is, use of herbal medicines is highly prevalent among older adults. Physicians concurrently record the use of Ayurvedic medication on patients' charts. This may avoid potentially harmful adverse interactions and help to deliver sound medical care.

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