Recent Trends in Herbal Medicines

Datta Wahatule¹, Punam gadekar², Priyanka nagare³, Varsha khekhale⁴, Dr.Gajanan Sanap⁵

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ABSTRACT
Herbal medicine is ever more popular in today’s world as people take out natural remedies. Herbal medicines have been used to maintain health and to treat various diseases. We are facing more challenges in the treatment of some medical conditions such as diabetes and cancer. This article provides an overview of herbal medicines and aims to explain the therapeutic efficacy of various herbal medicines, adverse drug reactions, drug interactions, standardization and stability testing of herbal medicines, pharmacovigilance and regulatory status of herbal medicines. This information was then compared with those in other countries with established systems in order to establish the existing inadequacies. The various efforts to document herbal medicine incorporate into mainstream healthcare and the legal framework was also reviewed.

Keywords: Herbal drugs, pharmacovigilance, standardization

I. INTRODUCTION
Herbal medicine, sometimes referred to as botanical medicine or herbalism, involves the use of plants or parts of plants, to treat injuries or illnesses. Herbal medicines are the study or use of medicinal herbs to prevent and treat diseases and ailments or to promote health and healing. It is a drug or preparation made from a plant or plants and used for any of such purposes. Herbal medicines are the oldest form of health care known to mankind. There are numerous herbal products available that claim to treat the symptoms of a wide range of problems, from depression to cold and flu. World Health Organization (WHO) has defined herbal medicines as finished, labeled medicinal products that contain active ingredients, aerial or underground parts of the plant or other plant material or combinations. World Health Organization has set specific guidelines for the assessment of the safety, efficacy, and quality of herbal medicines. WHO estimates that 80% of the world populations presently use herbal medicines for primary health care. Exceptionally, in some countries herbal medicines may also contain by tradition, natural organic or inorganic active ingredients which are not of plant origin. Herbal medicine is a major component in traditional medicine and a common element in Ayurvedic, homeopathic, naturopathic and other medicines systems. Herbs are traditionally considered as harmless since they belong to natural sources. The use of herbal medicine due to toxicity and side effects of allopathic medicines, has led to sudden increase in the number of herbal drug manufacturers. There has been a significant increase in the proliferation and use of dietary supplements including nutraceuticals over the past two decades. Nutraceuticals include all herbal medications, medicinal foods, and vitamins. Although herbal products are neither prescribed nor often recommended by traditional healthcare providers, patients seeking conventional and unconventional health care are more commonly using these over-the-counter substances. There are more than 29,000 herbal and related substances presently used or available for consumption in the United States.

The earliest evidence of humans use of plant for healing dates back to the Neanderthal period.[10] Herbal medicinal is now being used by an increasing number of patients who typically do not report to their clinicians concomitant use. There are multiple reasons for patients turning to herbal therapies. Often cited is a “sense of control,” mental comfort from taking action, “which helps explain why many people taking herbs have diseases that are chronic or incurable viz. diabetes, cancer, arthritis or AIDS. In such situations, they often believe that conventional medicine has failed them. When patient use home remedies for acute, often self-limiting conditions, such as cold, sore throat, or bee sting, it is often because professional care is not immediately available, too inconvenient, costly or time-consuming. In rural areas, there are additional cultural factors that encourage the use of botanicals, such as the environment and culture, a “man earth relationship.” People believe that where an area gives rise to a particular disease, it will also
support plants that can be used to cure it.[10] In India vast sections of the rural population have no access to modern medicine.[12] Hundred of primary health centers which are intended to serve rural areas, lack staffs, diagnostic facilities, and adequate supplies of drugs. The rural population is heavily dependent on traditional medical systems.[12] Natural plant products are perceived to be healthier than manufactured medicine,[13] Additional, report of adverse effect of conventional medications are found in the lay press at a much higher rate than reports of herbal toxicities, in part because mechanisms to track adverse effect exist for conventional medicines whereas such data for self-treatment is harder to ascertain. Even physicians often dismiss herb as harmless placebos. Plants had been used for medicinal purposes long before recorded history. Ancient Chinese and Egyptian papyrus writings describe medicinal uses for plants as early as 3,000 BC. Indigenous cultures (such as African and Native American) used herbs in their healing rituals, while others developed traditional medical systems (such as Siddha, Ayurveda, Unani and TCM) in which herbal therapies were used.[1] The consumption of plant-based medicines and other botanicals in the West has increased manifold in recent years. About two centuries ago, our medicinal practices were largely dominated by plant-based medicines. However, the medicinal use of herbs went into a rapid decline in the West when more predictable synthetic drugs were made commonly available. In contrast, many developing nations continued to benefit from the rich knowledge of medical herbalism. For example, Siddha & Ayurveda medicines in India, Kampo Medicine in Japan, traditional Chinese medicine (TCM), and Unani medicine in the Middle East and South Asia are still used by a large majority of people.

ADVANTAGES OF HERBAL MEDICINES
• low cost
• Strength and effectiveness
• Better tolerance
• More safety
• Low side-effects
• Ready availability
• Eco-friendly.

DISADVANTAGES OF HERBAL MEDICINES
• Not able to treat sudden illness and accidents
• Risk with self dosing
• Difficulty in standardizations

TREATMENT OF DENTAL DISEASES
The plants having the dental care properties are Acacia catechu, Acacia arabica, Althea officinalis, Anacysus pyrethrum, Azardica indica, Barleria prionitis, Cinnamomum camphora, Cuminum cyminum, Eucalyptus globules, gardenia gummifera, Holarrhenia antidysenterica, Jasminum grandiflorum, Juglanis regia, Mimusops elengi, Myrica sapida, Myroxylon balsamum, Ochrocarpus longifolius, Ocimum sanctum, Origanum vulgare, Piperlongum, Piper nigrum, Pistacia lentiscus, Pterocarpus marsupium, Punica granatum, Salvador persica, Salvia officinalis, Solanum xanthocarpum, Symposco racemosa, Syzygium aromaticum, Thalictrum foliolosum, Zanthoxylum alatum. All these regimens plays a significant role in suppressing the dental problems.

TREATMENT OF DIABETES MELLITUS
From ancient period, peoples are using herbal plants as home remedies for the treatment of diabetes 9. The various herbal plants with antidiabetic activity are Abroma augusta, Acacia melanoxylon, Acacia modesta, Acacia nilotica, Aconitum ferox, Adhatoda vasika, Adiantum capillus, Adiantum incisum, Agrimonia eupatoria, Allium sativum, Aloe barbadensis, Althaea officinalis, Apium graveolens, Arctium lappa, Commiphora abyssinica, Emblica officinalis, Eucalyptus globules, Ginseng panax, Gymnema sylvestre, Inula helenium, Juniperus communis, Medicago sativa, Nigella sativa, Orthosiphon stamineus, Panax quinquefolius, Polygala senega, Plantago ovata, Punica granatum, Salvia officinalis, Scopariadulcis, Tanacetum vulgare, Taraxacum officinale, Tecoma stans, Trifolium alexandrinum, Trigonella foenum, Turnera diffusa, Urtica dioica, Xanthium strumarium, Zea mays, Zingiber officinale.

TREATMENT OF CANCER
Medicinal plant products exhibiting anticancer activity continue to be the subject of extensive research aimed at the development of drugs for the treatment of different human tumors. The medicinal plants used for the treatment of skin cancer are, Acalypha fruticosa, Allamang lamarki, Catharanthus roseus, Celastrus paniculatus, Embelia ribes, Ficus glomerata, Ficus racemosa, Ocimum basilicum, Plumbago zeylanica, Terminalia chebula, Tylophora indica, Wrightia tinctoria. The extracts used for the treatment of breast cancer is Buthus martensi, Colla cornu, Herbaepimedii, Fructus lycii, Radix angelicae, Radix bupleuri,
Rhizomacordalis, Rhizoma curculiginis, Radix paeoniae, Radixglycyrrhizae, Scolopendra subspinipes, Squama manitis, Tubercurcumae. The herbal medicines used for treatment of pancreatic cancer is Emblica officinalis, Nigella sativa, Terminalia bellciera.

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Pharmacovigilance of Herbal Drugs

Pharmacovigilance is the science and activities relating to the detection, assessment, understanding, and prevention of adverse effects of drugs or any other possible drug-related problems. Recently, its concerns have been widened to include: herbs, traditional and complementary medicines, blood products, biological, medical devices and vaccines. The aims of pharmacovigilance is to protect patients from unnecessary harm by identifying previously unrecognized drug hazards, elucidating predisposing factors and quantifying risk in relation to benefits. WHO has increased its efforts to promote herbal safety monitoring within the context of the WHO International Drug Monitoring Programme. The WHO guidelines aim to propose the member states of a frame work for facilitating the regulation of herbal medicines used in traditional medicine covering issues like classification, assessment of safety, assessment of the efficacy, quality assurance, pharmacovigilance and control of advertisements of herbal medicinal products. The pharmacovigilance of herbal medicines exhibits particular challenges because such preparations are available from a wide range of outlets typically where there is no health care professional available, most purchases are in conventional OTC environment. Various methods in pharmacovigilance are passive surveillance including spontaneous reporting and stimulated reporting, active surveillance by sentinel sites, drug event monitoring, registries, comparative observational studies by survey study, case control study, targeted clinical investigations by investigate drug-drug interactions and food-drug interactions. The importance of genetic factors in determining an individual susceptibility to adverse drug reactions is well documented and this implies to herbal medicines as well as conventional drugs. Pharmacovigilance is therefore one of the important post-marketing safety tools in ensuring the safety of pharmaceutical and related health products.

STANDARDIZATION OF HERBAL DRUGS

This involves adjusting the herbal drug preparation to a defined content of a constituent or a group of substances with known therapeutic activity by adding excipients or by mixing herbal drugs or herbal drug preparations. Botanical extracts made directly from crude plant material show substantial variation in composition, quality, and therapeutic effects. Standardized extracts are high-quality extracts containing consistent levels of specified compounds, and they are subjected to rigorous quality controls during all phases of the growth, harvesting, and manufacturing processes. No regulatory definition exists for standardization of dietary supplements. As a result, the term "standardization" may mean many different things. Some manufacturers use the term "standardization" incorrectly to refer to uniform manufacturing practices, but following a recipe is not sufficient for a product to be called standardized. Therefore, the presence of the word "standardized" on a supplement label does not necessarily indicate product quality. When the active principles are unknown, marker substances should be established for analytical purposes and standardization. Marker substances are chemically defined constituents of an herbal drug that are important for the quality of the finished product. Ideally, the chemical markers chosen would also be the compounds that are responsible for the pharmacological effects in the body. There are two types of standardization. In the first category, "true" standardization, a definite phytochemical or group of constituents is known to have activity. Ginkgo with its 26% ginkgo flavones and 6% terpenes is a classic example. These products are highly concentrated and nolonger represent the whole herb, and are now considered as phytopharmaceuticals. In many cases...
they are vastly more effective than the whole herb. However, the process may result in the loss of efficacy and the potential for adverse effects and herb–drug interactions may increase. The other type of standardization is based on the guarantee of the manufacturers for the presence of a certain percentage of marker compounds, which are not indicators of therapeutic activity or quality of the herb.

**Status of Herbal Medicine in India**

India has a rich tradition of herbal medicine as evident from Ayurveda, which could not have flourished for two thousand years without any scientific basis. Ayurveda which literally means knowledge (Veda) of life (Ayur) had its beginning in Atharvaveda (Circa 1500-1000 BC). Charak Samhita and Sushruta Samhita are the two most famous treatises of Ayurveda; several others were compiled over the centuries such as Bela Samhita, Kashyap Samhita, Agnivesh Tantra, Vagbhata's Ashtanga Hridaya (600), Madhava Nidan (700 AD) (Lele, 1999). Vegetable products dominated Indian Medicine which made extensive use of bark, leaves, flower, fruit, root, tubers and juices. The theory of rasa, vipaka, virya and prabhava formed the basis of Ayurvedapharmacology, which made no clear distinction between diet and drug, as both were vital components of treatment. Charak, Sushruta and Vagbhata described 700 herbal drugs with their properties and clinical effects. Based on clinical stimulant categories of drug have been described – such as appetizers, digestive stimulant, laxatives, anti-diarrheea, anti-haemorrhoid, anti-emetic, anti-pyretic, anti-inflammatory, anti-pruritic, anti-asthmatic, anti-epileptic, anti-helminthic, haemoptietic, haemostatic, analgesia, sedative, promoter of life (Rasyana), promoter of strength, complexion, voice, semen and sperm, breast milksecretion, fracture and wound healing, destroyer of kidney stones etc. Herbal drugs are regulated under the Drug and Cosmetic Act (D and C) 1940 and Rules 1945 in India, where regulatory provisions for Ayurveda, Unani, and Siddha medicine are clearly laid down. Department of AYUSH is the regulatory authority and mandate that any manufacture or marketing of herbal drugs have to be done after obtaining manufacturing license, as applicable. Phytotherapeutic agents are standardized herbal preparations consisting of complex mixtures of one or more plants which contain as active ingredients plant parts or plant material in the crude or processed state. A marked growth in the worldwide phytotherapeutic market has occurred over the last 15 years. For the European and USA markets alone, this will reach about $7 billion and $5 billion per annum, respectively, in 1999, and has thus attracted the interest of most large pharmaceutical companies. Insufficient data exist for most plants to guarantee their quality, efficacy, and safety. The idea that herbal drugs are safe and free from side effects is false. Plants contain hundreds of constituents and some of them are very toxic, such as the most cytotoxic anti-cancer plant-derived drugs, digitalis and the pyrrolizidine alkaloids, etc.

**II. CONCLUSION**

There has been a tremendous upsurge in the usage of nutraceuticals in recent times, and the results of this study demonstrate that patients are not informing clinical anesthesiologists prior to their elective surgery. Moreover, there is little, if any, motivation for herbal manufacturersto conduct scientific clinical trials of these products. More than 100 deaths, related to the use of herbs, have been reported in the medical literature. The anesthesia literature, unfortunately, has not addressed this important issue, although the American Society of Anesthesiologists (ASA) has recently provided some commentary on the anesthetic care of the patients who use herbal supplements. The ASA has suggested that all herbal medicines should be discontinued two to three weeks before an elective surgical procedure so as to avoid potential intraoperative catastrophic events. A detailed history of usage of herbal products might be recorded and made a routine part of the preanesthetic evaluation. Future studies are warranted to develop guidelines regarding the care and treatment of patients who are self-administering herbal products. Furthermore, additional studies are needed to better define the pharmacological properties of nutraceuticals and their many derivatives, as well as their potential anesthetic interactions.

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