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REVIEW ARTICLE

An Overview on Herbal Medicine

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ABSTRACT:
There is a great demand of the herbal drugs from both the developing as well as developed nations because of their efficacy, safety and lesser side effects as compared to synthetic molecules. These drugs also offer therapeutics for age-related disorders like memory loss, osteoporosis, immune disorders, etc. for which no modern medicine is available. As the effectiveness and acceptability of the herbal products greatly depends upon its quality. Patient disclosure of herbal use may provide an opportunity for the physician to redirect the patient towards effective conventional health care. By taking a complete drug and supplement history, a dialogue can be initiated to rationally compare the appropriateness of herbal remedies and regulated pharmaceuticals in relation to the severity of the condition.

KEYWORDS: Efficacy, safety, lesser side effects, memory loss, osteoporosis, immune disorders.

INTRODUCTION:
Human beings have depended on nature for their simple requirements as being the sources for medicines, shelters, food stuffs, fragrances, clothing, flavours, fertilizers and means of transportation throughout the ages. For the large proportions of world's population medicinal plants continue to show a dominant role in the healthcare system and this is mainly true in developing countries, where herbal medicine has continuous history of long use. The development and recognition of medicinal and financial aids of these plants are on rise in both industrialized and developing nations[1].

The foundations of typical traditional systems of medicine for thousands of years that have been in existence have formed from plants. The plants remain to offer mankind with new medicines. Some of the beneficial properties ascribed to plants have recognised to be flawed and medicinal plant treatment is based on the experimental findings of hundreds to thousands of years. The earliest reports carved on clay tablets in cuneiform date from about 2600 BC are from Mesopotamia; among the materials that were used were oils of Commiphora species (Myrrh), Cedrus species (Cedar), Glycyrrhiza glabra (Licorice), Papaver somniferum (Poppy juice) and Cupressus sempervirens (Cypress) are still used today for the cure of diseases extending from colds and coughs to inflammation and parasitic infections[2]

Advantages of Herbal Medicine[3]:
- They have long history of use and better patient tolerance as well as acceptance.
- Medicinal plants have a renewable source, which is

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only hope for sustainable supplies of cheaper medicines for the world growing population.

- Availability of medicinal plants is not a problem especially in developing countries like India having rich agro-climatic, cultural and ethnic biodiversity.
- Prolong and apparently uneventful use of herbal medicines may offer testimony of their safety and efficacy.
- Throughout the world, herbal medicine has provided many of the most potent medicines to the vast arsenal of drugs available to modern medicinal science, both in crude form and as a pure chemical upon which modern medicines are structured.

Limitations of Herbal Medicines[4]:

- Ineffective in acute medical care
- Inadequate standardization and lack of quality specifications
- Lack of scientific data

Current and future status of Indian herbal medicines:

India is sitting on a gold mine of well-recorded and well practiced knowledge of traditional herbal medicine. India is one of the 12-mega biodiversity centres having over 45,000 plant species. Its diversity is unmatched due to the presence of 16 different agro-climatic zones, 10 vegetative zones and 15 biotic provinces. The country has 15,000–18,000 flowering plants, 23,000 fungi, 2500 algae, 1600 lichens, 1800 bryophytes and 30 million micro-organisms[5]. India also has equivalent to 3/4 of its land exclusive economic zone in the ocean harbouring a large variety of flora and fauna, many of them with therapeutic properties. About 1500 plants with medicinal uses are mentioned in ancient texts and around 800 plants have been used in traditional medicine. But, unlike China, India has not been able to capitalize on this herbal wealth by promoting its use in the developed world despite their renewed interest in herbal medicines[6].

Herbal Medicine:

The WHO has recently defined traditional medicine (including herbal drugs) as comprising therapeutic practices that have been in existence, often for hundreds of years, before the development and spread of modern medicine and are still in use today. Traditional medicine is the synthesis of therapeutic experience of generations of practicing physicians of indigenous system of medicine. Traditional preparations comprise medicinal plants, minerals and organic matter etc. Herbal drugs constitute only those traditional medicines which primarily use medicinal plant preparations for therapy. The earliest recorded evidence of their use in Indian, Chinese, Egyptian, Greek, Roman and Syrian texts dates back to about 5000 years. The classical Indian texts include Rigveda, Atharvaveda, Charak Samhita and Sushruta Samhita. The herbal medicines / traditional medicaments have therefore been derived from rich traditions of ancient civilizations and scientific heritage.[7]

Difference of Herbal and Conventional Drugs[8]

Although superficially similar, herbal medicine and conventional pharmacotherapy have three important differences:

Use of Whole Plants

Herbalists generally use unpurified plant extracts containing several different constituents. It is claimed that these can work together synergistically so that the effect of the whole herb is greater than the summed effects of its components. It is also claimed that toxicity is reduced when whole herbs are used instead of isolated active ingredients ("buffering"). Although two samples of a particular herbal drug may contain constituent compounds in different proportions, practitioners claim that this does not generally cause clinical problems. There is some experimental evidence for synergy and buffering in certain whole plant preparations, but how far this is applicable to all herbal products is not known.

Herb Combining:

Often several different herbs are used together. Practitioners say that the principles of synergy and buffering apply to combinations of plants and claim that combining herbs improves efficacy and reduces adverse effect. This contrasts with conventional practice, where polypharmacy is generally avoided whenever possible.

Diagnosis:

Herbal practitioners use different diagnostic principles from conventional practitioners. For example, when treating arthritis, they might observe, "under functioning of a patient's symptoms of elimination" and decide that the arthritis results from "an accumulation of metabolic waste products". A diuretic, cholerectic or laxative combination of herbs might then be prescribed alongside herbs with anti-inflammatory properties.

Bioavailability of Herbal Drugs:

The bioavailability of the active constituents of the herb is another area of considerable importance. Before a compound can act systemically it must pass from the gastrointistinal tract into the blood stream. This is an area in which surprisingly little is known for herbal constituents[9]. Compound, such as berberine and hydrastine in the popular botanical are essentially not absorbed following oral consumption. Studies showing systemic effect in animal have all involved parenteral administration of these alkaloids. Yet goldenseal remains one of the best-selling herbs, is widely promoted, and is accepted by a misinformed public as a nonspecific immunostimulant[10]. Cinnabar has been for a long time in

traditional medicine. The toxic effects of inorganic mercury are well recognized, but because of its insolubility it has been assumed that this compound would not be significantly absorbed from the gastrointestinal tract. However, investigation of on the oral absorption of cinnabar in mice found a significant increase in mercury concentration in the liver and kidney. Concomitant use of cinnabar and drugs containing bromides, sulphates, sulphides, nitrates and iodine may enhance its toxicity by increasing the gastrointestinal absorption[11].

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 other were compiled over the centuries such as Bela Samhita, Kashyap Samhita, Agnivesh. Tantra, Vagbhata's Ashtang hridaya (600), Madhava Nidan (700 AD) [12]. Vegetable products dominated Indian Meteria Medica 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 Ayurveda pharmacology, which made no clear distinction between diet and drug, as both were vital component of treatment harak, Sushruta and Vagbhata described 700 herbal drugs with their properties and clinical effects[13].

Based on clinical effects 50 categories of drug have been decribed–such as appetizers, digestive stimulant, laxatives, anti-diarrhea, anti-haemorrhoid, anti-emetic, anti-pyretic, anti-inflammatory, anti-pruritic, anti-asthmatic, anti-epileptic, anti-helminthic, haemoptietic, haemostatic, analgesis, sedative, promoter of life (Rasyana), promoter of strength, complexion, voice, semen and sperm, breast milk secretion, fracture and wound healing, destroyer of kidney stones etc[11]. The advent of western medicine in the eighteen century was a setback to the practice of Ayurveda, which suffered considerable neglect at the hands of the colonial administration. After the first success of reserpine, an enormous amount of characterization of medicinal plants was done in many laboratories and University Departments, but the outcome was discouraging because the effort was disorganized, thin spread and non-focused[14]. Molecular pharmacology now provides a new interface between Ayurveda and modern medicine. Using modern techniques, various categories of Ayurvedic drug could provide novel molecular probes. It is now possible to explore the mechanism of action of Ayurvedic drugs in terms of current concept of molecular pharmacology. Some striking example, of Ayurvedic drugs which are understood in terms of today's molecular pharmacology: Sarpagangha (Rauwolfia serpentina) Reserpine uniquely prevent pre-synaptc neuronal vesicular uptake of biogenic amines (dopamine, serotonin and nor-epinephrine). Mainmool (Coleus forskoli Briq) Forskolin directly stimulates adenylate cyclase and cyclic AMP, with inotropic and Lusitropic effect on heart muscle. Sallaki (Boswellia serrata) Boswelic acid inhibits 5-lipo-oxygenase and leukotreine B4 resulting in anti-inflammatory and anti-complement effect. Shirish (Albizzia lebek) prevents mast cell degranulation, similar to sodium cromoglycate. Aturagupta (Mucona pruriens) contains L-DOPA Ashwagandha (Withania somnifera) GABA-A receptor agonist. Katuka (Picrorhiza kurua) anti-oxidant action equal to a tocopherol, effect on glutathion metabolism in liver and brain listed 15 crude Ayurvedic drugs, which have received support for their therapeutic claims. Some of Rasyana dravyas have been shown to increase phagocytosis, activate macrophages and enhance resistance to microbial invasion. Drugs like Asparagus racemousus, Tinosporacodifolia and Ocimum sanctum antagonise the effect of stress[15]. Emblica officinalis L., Curcuma longa L., Mangifera indica L., Momordica charantia L., Santalum album L., Swertia chirata Buch-Ham, Winthania somnifera (L.) have well defined antioxidant properties and justify their use in traditional medicine in the past as well as the present Use of the herbal medicine in jaundice, presumably viral hepatitis, has been known in India science the Vedic times. About 170 phyto-constituents isolated from 110 plants belonging to 55 families have been reported so far to possess liver protective activities. It is estimated that about 6000 commercial herbal formulations are sold world over as hepatoproctective drugs. Of them about 40 patent Polyherbal formulations representing a variety of combinations of 93 Indian herbs from 44 families are available in the Indian market[16].

However, the following four herbal medicines have been found to be most promising in the treatment of viral hepatitis,

i. Silymarin obtained from the seeds of Silibum marianum,
ii. Extracts of Picrorrhiza kurroa, popularly known 'Kutaki'
iii. Extract of many plant of the genus, Phyllanthus, have been used as hepatoprotective, of them, the most widely used ones have been Phyllanthus niruri and Phyllanthus amarus,
iv. Glycyrrhizin prepration have been used in the past for peptic ulcer as well as liver diseases with mixed results.

However, a new Japanese preparation from glycyrrhizin, stronger neomenophagen C (SNMC), appear to be very promising in the treatment of virus related chronic liver diseases Liv 52, an extract of several plants prepared for

Ayurvedic medicine was reported to improve serum biochemistry values in rats with toxic liver damage, and uncontrolled observations in patients with liver disease seemingly gave similar result.

Double-blinded and well-designed clinical trials have also been conducted with Argyowardhani in viral hepatitis, Mucuna pruriens in Parkinson's disease. Phyllanthus amarus in hepatitis and Tinospora cordifolia in obstructive jaundice. India is one of the 12 mega biodiversity centers having over 45,000 plant species. About 1500 plants with medicinal uses are mentioned in ancient texts and around 800 plants have been used in traditional medicine. However, India has failed to make an impact in the global market with drugs derived from plants and the gap between India and other countries is widening rapidly in the herbal field. The export of herbal medicine from India is negligible despite the fact that the country has a rich traditional knowledge and heritage of herbal medicine.

The circumstance, which tends to frustrate a major developmental initiative for herbal products are many sided in the country:

i. There is no clear definition of the target to be achieved or a time frame within which the target, if any, should be achieved.
ii. There is no co-ordination among the national laboratories that are investigating medicinal plants.
iii. A serious dialogue between publicly funded institution and the industry is conspicuous by its absence.
iv. A mechanism for regular interaction between the expert in Ayurveda and R&D group on medicinal plant does not exist. At the political level, Ayurveda is constantly extolled, but no effort is made to unify the scattered and thinly-spread effort into a powerful course of action with specified goal in the development of herbal drugs.[17]

CONCLUSION:

Herbal medicine is making dramatic comeback and increasing number of patients are visiting alternative medicine clinics as the side effects of synthetic medicine are alarming. Under the prevailing circumstances futher investigations into the concept of polyherbal formulations should be undertaken. It can be concluded that polyherbal formulations should not be dismissed only on the basis that they do not withstand modern research. Ayurveda and herbal medicine has roots in medicinal herbs and they have been practiced for centuries. There is need for development of techniques which includes both traditional methods of evaluation and modern methods of evaluation. This will improve the quality of the drug and also motivates the practitioners to get more involved in the standardization process. Patient disclosure of herbal use may provide an opportunity for the physician to redirect the patient towards effective conventional health care. By taking a complete drug and supplement history, a dialogue can be initiated to rationally compare the appropriateness of herbal remedies and regulated pharmaceuticals in relation to the severity of the condition. Patient with chronic conditions such as AIDS or cancer should also be warned that some of the adverse effect of herbals is often similar to symptoms of problem associated with their disease or treatment, thus making it difficult to discern if the disease or the "remedy" is the problem. For the herb-using patient who views conventional medicine with ambivalence, the physician can foster a more open and communicative relationship by demonstrating an objective understanding of both alternative and conventional approaches.

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