



Ayurvedic and Herbal Remedies for Neurological Disorders

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Abstract: Synthetic remedies for human brain disorders are premium characteristic long treatments, sometimes showing serious and necessary side effects with poor patient compliance. Therefore, the herbal and Ayurvedic treatments are preferred over synthetic remedies for a range of human brain disorders including, Alzheimer's disease, depression, anxiety, etc.

Ayurvedic system of medicine has traditionally been used in several neurological conditions. The accessibility, negligible prevalence of side effects and cost effectiveness of plant products offer considerable advantages. These days major attention is drawn towards the established traditional systems of herbal remedies for multiple brain disorders, generating positive hopes for the patients.

Ayurveda the ancient holistic knowledge of India is treating neurological conditions since its inception. Neurological problem in Ayurveda described substantially in the context of Vatavyadhi.

Ayurvedic treatments for neurological disorders will aim to rectify this Vata imbalance and bring the Vata dosha in balance with Pitta and Kapha dosha so as to exclude the complaint.

Recent advancement of Ayurvedic Clinical Research shows that so numerous incurable neurological problems can be successfully treated by Ayurvedic drugs and Panchakarma therapies.

Keywords: Alzheimer's, Depression, Anxiety, Insomnia, Migraine.

Objective: This review will indicate the quality of the documentation advocating the clinical effects of a number of generally used types of herbal medicines for neurological disorders.

Method: We conducted a review of literature to understand the biochemical and evidential bases for the usage of herbs in neurological disorders as follows: 1) Alzheimer's

2) Depression 3) Anxiety 4) Insomnia 5) Migraine.

Introduction:

Herbal drugs include a range of pharmacologically active components: in some cases, it is not well understood which ingredients are important for a remedial effect. The supporters of herbal drugs believe that isolated ingredients in the majority of cases have delicate clinical effects than whole plant extract, a claim that would obviously bear evidence in each case.

Concepts about the efficiency of herbal drugs are easily not possible. Each one needs organized research involving a diversity of animal studies and also randomized clinical trials.

Many of today's synthetic drugs originated from the plant kingdom, and only about two centuries ago, the major pharmacopoeias were dominated by herbal drugs.

This review will indicate the quality of the documentation supporting the clinical effects of a number of generally used types of herbal drugs for neurological disorders as follows: 1) Alzheimer's disease 2) Depression 3) Anxiety 4) Insomnia 5) Migraine.

The topmost position of confidence derives from well-designed, randomized, double blind controlled studies.

It is correctly accepted that the nature has best answers to all the conditions affecting the human body from time to time. When the synthetic medicines fail to be effective or show serious side effects, it is the plant drug which brings relief.

Numerous of the plant species distributed throughout the world, have some pharmacological action on the body.

Herbal treatment is the natural form of recovery remedy to cure the conditions of mankind. Now-a-days, the herbal medicines are back into the elevation because the synthetic drugs, which formerly had universal acceptance, are now known to frequently cause side effects.

Recently, it has been clinically proved that the treatment of high blood pressure utilizing synthetic drugs is having a negative impact on their patient's mental health [1].

The nervous system is a complex, sophisticated system that regulates and coordinates the body's fundamental functions and activities. Our entire body is controlled by nervous system. Starting from the digestion up to endocrine function, everything is depending upon the complex neurophysiology. It is made up of two major divisions, containing the central nervous system (conforming of the brain and spinal cord) and the peripheral nervous system (conforming of all other neural elements) (14).

Ayurveda the ancient holistic science of India is treating neurological disorders since its commencement but the language was commodity different. Ayurveda considers neurological disorders to be the result of a Vata disorder. Ayurveda treatments for neurological diseases will aim to rectify this Vata imbalance and bring the Vata dosha in balance with pita and Kapha dosha so as to exclude every type of complaint in an individual. 10, 16.

Alzheimer's disease

Alzheimer's disease (AD) is the most common cause of severe mental deterioration (dementia) in the elderly (1,2).

AD was known to occur occasionally in families, but was not necessarily related to the more frequent circumstance of cognition impairment in late life. The latter condition was known senile dementia. (1,2).

Ginkgo biloba

Ginkgo biloba is an herbal drug that has been used to treat a variety of ailments for thousands of years in China. An extract of Ginkgo biloba has been found in several studies to improve the symptoms and slow progression of Alzheimer's disease.

The patients were given either 120 mg of Ginkgo biloba extract or placebo every day for up to a year.

Only 14 percent of those using placebo had an enhancement on these tests. In an individual trial, 112 patients with chronic cerebral insufficiency received 120 milligrams per day Ginkgo biloba extract (3).

The researchers found that the use of this extract led to significant improvements in blood and oxygen flow.

Restricted blood and oxygen flow to the brain may be an important factor in the development of Alzheimer's.

Ginkgo biloba extract (GBE) appears to be most effective in the early stages of Alzheimer's.

A double-blind study of 216 Alzheimer's patients or dementia caused by small strokes found that 240 mg of GBE daily led to significant improvements in a variety of clinical parameters when compared to placebo.

All forms of Ginkgo need to be taken constantly for at least 12 weeks, a potentially difficult task for Alzheimer's patients, to determine whether the supplement is working. A recent double blind, placebo-controlled randomized study of patients.

Depression

Depression is a serious complaint in today's society with estimates of continuance frequency as high as 21 percent of the general population in some advanced countries.

As defined by the American Psychiatric association, depression is a heterogeneous disorder frequently manifested with symptoms at the psychological, behavioral and physiological levels.

Such patients are frequently reluctant to take synthetic antidepressants in their appropriate doses due to their anticipated side effects including inability to drive a car, dry mouth, constipation and sexual dysfunction.

As therapeutic alternative, effective herbal drugs may offer advantages in terms of safety and tolerability, possibly also enhancing patient compliance (11).

The advent of the first antidepressants, the monoamine oxidase inhibitors (MAOIs) and tricyclic antidepressants (TCAs), in the 1950s and 1960s represented a dramatic vault forward in the clinical management of depression.

The subsequent progression of the selective serotonin reuptake inhibitors (SSRIs) and serotonin norepinephrine reuptake inhibitor (SNRI) venlafaxine in the past decade and a half has greatly enhanced the treatment of depression by offering patients medications that are as effective as the old agents are, but that are generally more tolerable and safer in an overdose.

The preface of atypical antidepressants, such as bupropion and mirtazapine, has added mainly to the available pharmacopoeia for depression.

Though, rates of remission tend to be low and the risk of relapse and recurrence remains high. Therefore, there is a need for more effective and less toxic agents (4).

Plants extracts are some of the most attractive sources of new drugs, and have been shown to produce promising results for the treatment of depression (5).

Lavandula angustifolium (Lavender)

Lavender is used basically as an aromatic essential oil for relaxation. In a single-blind randomized control trial, 80 women who took daily baths with lavender oil experienced improved mood, reduced aggression, and a more positive outlook (5).

Likewise, the combination of lavender (60 drops/day of a Lavandula tincture) and imipramine (100 mg/day) was found to be more effective in the treatment of depression than either treatment alone, according to a double-blind randomized control trial.

The findings of this study suggested that taking a moderate amount of lavender might help reduce the number of tricyclic antidepressants required to treat depression, leading to fewer side effects (10).

Crocus sativus (Saffron)

Saffron is the world's most premium spice and apart from its traditional valuation as a food additive, recent studies indicate its potential as an anti-cancer agent and memory enhancer (12-14).

The valuation of saffron (dried spots of *Crocus sativus* L.) is determined by the actuality of three main secondary metabolites crocin and its derivatives, which are responsible for colour; picrocrocin, responsible for

taste; and safranal responsible for odour. This plant belongs to the Iridaceae family and as a remedial factory, saffron is considered an excellent aid for stomach complaints and an antispasmodic helps digestion and increases appetite. It also relieves renal stomach ache, reduces stomach ache and relieves pressure (12- 15).

Saffron is used for depression in Persian traditional drug (6).

Migraine

Migraine prevalence studies have indicated that more than 17 percent of the female and six percent of the male population in the United States suffer from the condition. In addition to the weakening effect of a migraine attack, sufferers report a significant impact on their quality of life between attacks.

Many migraine patients report that the fear of getting a headache completely disrupts their capacity to plan social events, vacations, and other family activities.

Available research on the treatment of migraine focuses on acute treatment and prophylactic medications.

Advances in acute treatment are well established. In contrast, there has been restricted progression in the prophylactic treatment of migraine. Herbal drug approaches to migraine prevention have shown some oath (7).

Ayurvedic plants primarily described for brain related disease

Presently, the world is looking towards brain healing prescriptions of traditional drugs, including Ayurveda, for a reliable cure with no or minimal side effects for psychiatric diseases.

Indian systems of drug are very well evolved for treating brain related diseases. The most significant among the Indian systems of drug is Ayurveda which describes the use of hundreds of plants independently or in combination for treating brain related diseases.

Description of each and every plant is beyond the scope of this review and has been taken up singly [29], however, the Ayurvedic prescriptions including these plants have been abstracted in Table 1.

In this Table, the list contains the majority of Indian plants which have been described in the treatment of mental diseases and are presently part of the regular Ayurvedic prescriptions.

Most of the prescriptions include more than one plant part which supports the synergistic approach of most of the Ayurvedic medicines. Except genetically embedded brain diseases, the Ayurvedic plants have potential to cure most of the mental conditions as given in Table 1.

S. No.	Botanical Name	Family	Hindi name	English name	Major chemical components	Ayurvedic recommendations
1	<i>Adhatoda zeylanica</i>	Acanthaceae	Adusa, Adusi, Safed vasa	Malabar nut	Vasicine, Vasicinone	Its powder with honey cures old epilepsy disease.
2	<i>Allium cepa</i>	Liliaceae	Pyaz, Kanda	Onion	Di alkenyl sulfides	Tea from its seeds is beneficial in insomnia.
3	<i>Bacopa monnieri</i>	Plantaginaceae	Brahmi	Thyme leaved gratiola, Indian pennywort	Bacosides A, B, C	Its juice is taken with "kuth" (<i>Costus speciosus</i>)

						root) powder in honey to help in hysteria. It's also recommended by adding "kuth" and "shankhpushpi" to cure epilepsy and hysteria. It's very useful in the recovery of memory power.
4	Brassica nigra	Brassicaceae	Raee	Black mustard	Gallic acid, quercetin	Its seeds and pigeon's droppings after grinding, are applied on forehead. It relieves migraine.
5	Cannabis sativa Linn.	Cannabinaceae	Bhang	Marijuana	Tetrahydrocannabinoids	Its leaves along with asafoetida have been used for epilepsy type problem in women. It's also useful in treating insomnia.
6	Citrus aurantifolia	Rutaceae	Neembu, Kagajinimbu	Lemon	Bergamottin, bergapten	Lemon juice is given to the patient of anxiety to normalize the heartbeat.
7	Convolvulus microphyllus	Convolvulaceae	Shankhpushpi, Shankahuli	Shankhpushpi	Convoline, convolamine	Its powder is mixed

						with milk or honey and “ghee” and taken to improve to the memory power.
8	Coriandrum sativum	Apiaceae	Dhania	Coriander	Linalool, geranyl acetate	When its extract is regularly taken, the vertigo and headache is relieved.
9	Cyperus scariosus	Cyperaceae	Nagarmotha	Nutgrass	Cyperene, Patchouli alcohol	It cures epilepsy when given with cow milk.
10	Datura metel	Solanaceae	Dhatura	Thorn apple	Hyoscine, hyoscyamine	Its seeds are ground with black pepper and given for treating psychosis.
11	Daucus carota	Apiaceae	Gajar	Carrot	Carotenoids, alpha-Pinene, sabinene	Leaves are extracted with warm “ghee” and drops given in nose and ears to cure migraine through sneezing.
12	Ficus benghalensis	Moraceae	Bargad, Badha	Banyan tree	Benghalenosi des, Leucopelargonidin glycoside	Its root bark powder when taken in sugar and cow’s milk, improves memory power.
13	Ficus religiosa	Moraceae	Peepal	Peepal tree, Sacred	Pelargonidine glycosides, sterols	Extract of branches cures madness.
14	Glycyrrhiza glabra	Papilionaceae	Mulethi	Fig, Liquorice root	Phenolics, glabridin	Root powder in

						ghee brings enhancements in epilepsy.
15	Helianthus annuus	Asteraceae	Hurhul	Sunflower	Diterpenoids, Kaurenoic acid	Its leaves juice and seeds are grinded together and applied on forehead to get relief from migraine.
16	Moringa oleifera	Moringaceae	Sahijan, Munga	Drum stick plant	Moringine, Moringinine	Decoction of its roots is given for epilepsy.
17	Nardostachys jatamansi	Valerianaceae	Jatamansi, Balchhad	Spikenard	Jatamansone and terpenoids	It's useful in epilepsy when taken with "ghee". "Jatamansi", "bach" and "Brahmi" juice are mixed in honey and given in mental problem.
18	Papaver somniferum	Papaveraceae	Posta, Afeem	Post, Poppy, Opium	Morphine, codeine, thebaine, papaverine	Poppy is beneficial in delirium, sleeplessness, convulsion, etc.
19	Piper longum	Piperaceae	Peepal	Long pepper	Piperine, Piperlongumine	Its roots in jaggery are given to overcome insomnia. admixture of "Peepal" and "bach" are given in milk to cure

						migraine pain.
20	Psidium guajava	Myrtaceae	Amrud, Safari	Guava	Oleanolic acid, ursolic acid	Decoction of leaves is given to cure mental and physical deformities. Tinge of leaves is massaged on the backbone of children for convulsion.
21	Punica granatum	Punicaceae	Anar	Pomegranate	1-(2-propenyl)-piperidine in leaves, anthocyanins in fruit.	Leaves after boiling with water and concentrating, the extract is given in warm milk to cure fatigue, tiredness and insomnia. Leaves and rose flowers are cooked in water and concentrated. It's given in ghee to cure madness.
22	Sapindus mukorossi	Sapindaceae	Reetha	Soapnut tree	Triterpenoid, sesquiterpenoid, saponin, glycosides	Its fruits are ground with black pepper and few drops poured in the nostrils to get relief from migraine pain.

						Its seeds along with kernel and peel are ground and to be inhaled regularly to cure epilepsy, fully.
23	<i>Syzygium aromaticum</i>	Myrtaceae	Lavang, Laung	Clove	Carvarol, thymol, eugenol	Cloves are grinded in water and the paste is applied on the earlobes to cure migraine.
24	<i>Terminalia chebula</i>	Combretaceae	Harad	The chebulic or bark myrobalan	Ethyl gallate, luteolin	Seeds are grinded in warm water and applied on forehead for relief in migraine.
25	<i>Vitis vinifera</i>	Vitaceae	Munakka, Angur, Dakh	Grapevine, Resins	Glycosides of pelargonidin cyanidin	"Munakka" is roasted and given for dizziness.
26	<i>Withania somnifera</i>	Solanaceae	Ashwagandha, Asagandha	Winter cherry, Poisonous gooseberry	Withaferin A, Withanolide A	In Ayurveda, this plant has been described for use in several illnesses and overall body strength.
27	<i>Zizyphus mauritiana</i>	Rhamnaceae	Ber	Jujube	Peptide and cyclopeptide alkaloids, sanjoinenine	Although not prescribed in Ayurveda, its fruit is used in mental healing as scientifically proved

						for epilepsy.
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Table 1: List of generally recommended Ayurvedic plants in brain disorders.

Current trend on preference for Ayurvedic treatment over synthetic drugs

Utmost of the synthetic mental medicines act in the brain to produce their euphoric effects. still, occasionally they also create damage due seizures, stroke and direct poisonous effects on brain cells.

A brain complaint also occurs when repeated medicine use leads to changes in the function of multiple brain circuits controlling the streets, decision-making, pleasures, impulse control, memory, learning and other functions. These changes make it harder for those with an dependence to witness pleasure in response to natural rewards, such as food, positive social interactions, sex, etc.

Also, most of the synthetic medicines for brain diseases floating in the market, most of them with proven side effects on brain function or other organs of the body [30]. Thus, discussing each of them difference in the ground of treatments between the two, have been discussed below and listed in Table 2.

Sr. No.	Condition	Allopathic treatment	Ayurvedic treatment
1	Taking up the complaint	Allopathy takes the body in pieces, is objective and deficient in nature.	Ayurveda takes the body as a whole and the physician has knowledge of all the systems of the body.
2	System of treatment	Allopathy is a system of physical health and it believes in the replacing/changing of the systems or organs for treatment and not much upset about the cure.	Ayurveda focuses on the wellness as a complete package, be it physical, psychological, spiritual or social.
3	Possibility of side effects	Allopathy is substantially a system of internal or external side effects.	Ayurveda is a natural cure in which scope of side effects is actually lower or mild.
4	Focus of the treatment	Allopathy focuses on suppressing the signs and symptoms of a complaint and no way appreciates to remove the complaint causing factors, fully.	Ayurveda considers that until a body devoid the complaint causing factors, it'll keep on relapsing. It considers the detoxification as a primary part of the treatment.
5	Nature of effect	Allopathic medicines incompletely cleanse the body.	Ayurvedic medicines decontaminate the whole body by balancing the three energies (vata, pitta, and kapha).

Table 2: Main differences between principles of allopathic and Ayurvedic treatments.

Management of neurological disorder in Ayurveda

Whole management can be classified in following manner-

1. Herbal/Herbo-mineral classical Ayurvedic medications
2. Panchakarma therapy

Panchakarma therapy in the management of Neurological disease 1,11

Panchakarma is fivefold treatment modalities which are basically divided in to three parts, namely Purva Karma (preparatory procedure), Pradhan Karma (main operative procedure) and Pacchat Karma (post operative regimen).

Panchakarma procedure purifies various system of the human body and expel out the accumulated poisonous metabolites from the body. Basically, Panchakarma is a bio-cleansing procedure which detoxifies the body and helps in raising bio-availability of medicines, diet etc.

Purva Karma (introductory procedure): It includes carminative (Deepan), digestive (Pachan) oleation (Snehan) and medicated sudation (Sweden). These are helpful for lubricating, liquifying of poisonous waste products/metabolites accumulated in various channels of the body and also helps for easy elimination from the body through nearest route.

Pradhan Karma (main operative procedure): After Purva Karma (introductory procedure), as per demand the Pradhan Karma (main operative procedure), i.e., therapeutic emesis (vaman karma) and therapeutic purgation (virechan karma) to be done, then one should follow medicated enema (vasti karma) and medicated nasal drops/ application (nasya karma).

Pacchat Karma (post operative regimen): After every process of Pradhan Karma (main operative procedure) one should follow a special dietary regimen called Samsarjan karma. It's essential to restore the normality of body tissue system as well as helps to rejuvenate the person.

Conclusion

Many factors underlie the raising popularity of herbal treatments for a variety of chronic conditions. However, they're more "culturally innovative" (i.e., comfortable with artistic changes) and more highly educated (8).

Many people using herbal drugs detect the wellness care alternatives are more harmonious with their own values, beliefs and philosophical exposures toward health and life. also, it seems likely that many people feel that herbal drugs are empowering by permitting them to treat themselves without seeing a physician (This identical attitude may be behind the raising popularity of patient- initiated diagnostic scanning procedures such as entire- body scans). The risk is that, many people believe that herbal drugs have no toxin troubles or indeed side effects. In addition, they aren't aware of multiple possible relations of herbal drug with coincidentally specified medications (9).

The allopathic and Ayurvedic systems of medicine work through independent principles. Allopathic medicines are prescribed on symptomatic principle while Ayurvedic through the balance of three energies (vata, pita and kapha) required for maintaining good health.

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