Nutrient impact of ayurvedic rasayana therapy in neurodegenerative disorders utilizing Ashwagandha.

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ABSRACT

Ayurveda is a Sanskrit word which means "the scripture for longevity". It adapts a unique holistic approach to the entire science of life, health and cure. It is increasingly being realized that many of today's diseases are due to “oxidative stress” that results from an imbalance between formation and neutralization of free radicals. However, chronic psychological and physical stress can result in elevated cortisol levels. Some of the symptoms of elevated cortisol levels include anxiety, depression, hypertension, stress-related fatigue, insulin resistance and obesity. Ayurveda envisages human being as a complex entity consisting of the physical body, sensory and motor organs, mind and spirit. The areas of special consideration in Ayurveda are geriatrics, rejuvenation, nutrition, immunology, genetics and higher consciousness. The Ayurvedic texts describe a set of rejuvenative measures to impart biological sustenance to the bodily tissues. These remedies are called Rasayana. The word Rasayana (Rasa + Ayana) means the way for attaining excellently Rasadi dhatus for nutrition and transportation in the body which are claimed to act as micronutrients tissues besides producing antistress, adaptogenic and memory enhancing effect. Ashwagandha is characterized as a best among “rasayana,” described by Charaka. It is an adaptogenic herb; popular in Ayurvedic medicine and has been used for more than 2,500 years. [Adaptogens help the body to adapt or adjust to stress]. It’s used to promote physical and mental health, to defend body against disease and damaging environmental factors, and to slow down the ageing process. Ashwagandha helps lower cortisol levels in chronically stressed individuals. It’s valued for its thyroid modulating, neuroprotective, anti-anxiety, antidepressant and anti-inflammatory properties. Thus in turn prevents ageing and provides longevity which can be understood as Vayasthapana or Jaranashana.

KEYWORDS: Rasayana, Rejuvenation, Adaptogenic, Jaranashna.

INTRODUCTION

The increasing number of the age in the present scenario signifies a new outlook for our reflection. Geriatrics is emerging as a main challenging specialty, because of ever growing population of aged people all over the world including India. A normal human life span was considered to be 100 years. It could be prolonged to 116-120 years through the use of preventive treatments, if they were started during late youth or middle age. In present era,
medical science deals exclusively with the problem of ageing and the diseases of the elderly. Improvements in environmental, behavioural factors, the treatment and prevention of infectious diseases are largely responsible for increase in life expectancy.[1]

**JARA AND AYURVEDA**

Ayurveda is basically the science of life and longevity. It presents a good concept of ageing, process of delaying the ageing and its management. According to the Ayurveda, ageing is outcome of kala or parinama and described under “Svabhavabalapravrittavyadhi”, those diseases which produced by the strength of nature such as kshudha (hunger), pipasa (thirst), jara (ageing), mrityu (death), nidra (sleep) etc. Ayurveda advocates an excellent approach for promotion of health and prevention of diseases with number of measures like wholesome diet in proper quantity, Dincharya, Ratricharya, Ritucharya, Sadvrittapalan, Achara Rasayana, Dharaniya and Adharaniyavegas, practices of yoga, Rasayana therapy (rejuvenative therapy), time to time Panchkarma and some herbal drugs. The proper practice of these all measures can slow down the process of ageing and cure the diseases of ageing.[2]

Ayurveda, included geriatrics as 1 of 8 medical divisions. Well-documented evidence exists for treating aging and age-related disorders. Geriatrics was termed Rasayanatantra.

**ABOUT RASAYANA**

(Charka Samhita, Chikitsasthanam I/7-8)

Long life, heightened memory and intellect, freedom from disease, youthfulness, excellence of complexion, luster, and of voice, optimum strength of the physical body and the senses, fulfillment of whatever is spoken, reverence of all people—and all this does one obtain by the proper use of rasayanas. So these are called rasayanas because they replenish the vital fluids of the body.[3]

Rasayana is a word taken from the Sanskrit language, which means: Path (ayana) of the essence (rasa). It is a science of increasing life expectancy, as per early ayurvedic medicine. Rasayana Chikitsa; also known as Rejuvenation Therapy aims to restore body’s vitality to its fullest. In other words, it aims to retain the youthfulness of body and mind. Rasayana is one important branch of Ayurveda among its eight branches. The concept of Rasayana is based on two-principles of conservation and transmutation of energy.[4]

Impurities accumulated through stress, over busy life and toxins affect our health, happiness and inner sense of well-being. The rejuvenation therapy aims normal functioning of
enzymes in the tissue cells. It keeps the nerves and the mind in a state of tranquility and soothes the bones as well. Specialized the therapies are used to clean the metabolic waste products of the body.

Several medicinal plants have been described as Rasayanas in Ayurveda. Ashwagandha is the best of the Rasayana described by Charaka. Ashwagandha (Withania somnifera L.Dunal.), is also known as Indian ginseng, or winter cherry. It has been an important herb in the Ayurvedic and indigenous medical systems for over 3000 years. The roots of the plant are categorized as Rasayanas and described to promote health and longevity by augmenting defences against disease, arresting the ageing process, revitalizing the body in debilitated conditions and thus creating a sense of well-being. The extract of W.somnifera has analgesic, mildly sedative, anti-inflammatory and anabolic activities.[5]

A first-class life-extending herb, one of Ashwagandha’s benefits is that it has also been shown in research studies at universities in Japan to regenerate nerve cells and dendrite growth throughout the brain and body, making it a frontline treatment in neurodegenerative diseases such as Alzheimer’s and Parkinson’s and an all-around bio-enhancing substance for anyone looking for a significant health boost. Ashwagandha also improves communication between nerve cells and stimulates the body to heal nervous system damage.[6]

AIMS AND OBJECTIVES

To study the efficacy of Ashwagandha in neurodegenerative disorders.

MATTERIAL AND METHOD

Charaka Samhita, Bhavprakash and other internate sources.

DISCUSSION

Ayurveda is the oldest system of medicine in the world, its antiquity going back to the Vedas. It adapts a unique holistic approach to the entire science of life, health and cure. The areas of special consideration in Ayurveda are geriatrics, rejuvenation, nutrition, immunology, genetics and higher consciousness. The Ayurvedic texts describe a set of rejuvenative measures to impart biological sustenance to the bodily tissues. These remedies are called Rasayana, which are claimed to act as micronutrients. Some of these Rasayanas are organ and tissue specific. Those specific to brain tissue are called Medhya Rasayana. Such Rasayanas retard brain aging and help in regeneration of neural tissues besides producing antistress, adaptogenic and memory enhancing effect. In addition to the
long tradition of textual and experience-based evidence for their efficacy, certain recent studies conducted. The popular Medhya Rasayanas are Ashwagandha, Brahmi, Mandukaparni and Sankhapuspi.

In Ayurvedic medicine, ashwagandha is characterized as a “rasayana,” which means that it’s used to promote your physical and mental health, to defend your body against disease and damaging environmental factors, and to slow down the aging process. In India, ashwagandha has been used as a broad-spectrum remedy for centuries, but more recently scientists have proven that it possesses anti-inflammatory and antioxidant properties that play a major role in the benefits. Of the most cherished herbal remedies, Ashwagandha is the highest or most prominent of Ayurvedic Rasayana herbs. Acting as an adaptogen, rejuvenating the nervous system, and boosting the body’s resilience to stress.[7]

Ashwagandha extracts have been shown to contain many beneficial compounds, including withanolides, alkaloids, choline, fatty acids, amino acids, and sugars. While its leaves and fruit do contribute to ashwagandha’s health benefits, extracts of its tuberous roots are most commonly used in herbal remedies.

Ashwagandha is primarily acts as an “adaptogen.” Adaptogens are substances that stabilize and balance various physiological processes within the body, especially in response to stress and a changing environment. It is known to reduce overall cellular sensitivity to stress.

This is one of the most commonly used adaptogens because of the many benefits. The top and most well-researched benefits include:

- Improves thyroid function
- Relieves adrenal fatigue
- Combats stress and anxiety
- Improves depression
- Balances blood sugar levels
- Helps to fight cancer
- Reduces brain cell degeneration and improves memory
- Boosts immune function
- Increases stamina and endurance
- Helps to increase muscle strength
- Helps to improve sexual function and fertility [8]

Ashwagandha helps protect your central nervous system. And is a promising alternative treatment for a variety of degenerative brain diseases including Alzheimer’s, Parkinson’s and Huntington’s disease through its antioxidant and inflammation-reducing mechanisms.

Withaferin A and withanolide D are the two main withanolides in ashwagandha that are used to improve cognitive function. Withanolides are naturally occurring steroids that are commonly present in plants of the nightshade family. When these steroids were injected into rodents to test their cognitive-improving abilities, researchers found that they helped
to promote cell outgrowth, reverse behavioral deficits and plaque buildup, and reduce amyloid beta burden, which is crucially involved in the development of Alzheimer’s disease.

As an antioxidant, *Ashwagandha* seeks out and destroys free radicals. Free radicals have been implicated in many age-related diseases. There’s even some emerging evidence that *Ashwagandha* offers anti-cancer benefits.

*Ashwagandha* helps reduce anxiety and depression. It reduces the stress hormone cortisol, lowers blood sugar levels, and improves lipid profiles.[9]

Cortisol is the body’s stress hormone. When we are stressed (any type of stress: Physical, mental, emotional, being tired, hungry… anything) we release cortisol. High levels of cortisol are extremely unhealthy for the body and in today’s modern world, most of the society has dangerously high levels of cortisol. Cortisol makes us stressed, weak, sick, depressed, and age more quickly.

In one experiment, researchers compared the cortisol levels in the blood of the people taking *ashwagandha* at the beginning of the study with their cortisol levels 60 days later. The blood levels of cortisol dropped significantly for the people taking this particular *Ashwagandha*. The cortisol levels decreased by 27.9% in only 60 days. That is an enormous drop in cortisol levels and it explains a lot. Lowering cortisol not only decreases stress, improves mood, and decreases anxiety and depression, but it also is healthy on the heart and for longevity.[10]

*Ashwagandha* helps regenerate axons and dendrites of brain nerve cells. And helps reconstruct synapses, the junctions where nerve cells communicate with other cells.[11] Boosting memory and restoring neural networks affected by neurodegenerative disease.

*Ashwagandha* extract inhibits acetylcholinesterase. The enzyme responsible for breaking down the key neurotransmitter acetylcholine.[12]

**How does Ashwagandha Work in the Brain?**

*Ashwagandha* boosts brain health and function in several ways. But two in particular stand out.

1. *Ashwagandha* enhances GABA receptors and serotonin in the brain. It appears to work on neuron receptors, enabling GABA to connect easier. This inhibits the signals present under a stress response in the brain. Anxiety goes down.

   A study was conducted at The Canadian College of Naturopathic Medicine with 75 volunteers with moderate to severe anxiety. *Ashwagandha* produced a significant decrease in anxiety levels over the control group.[13]

2. *Ashwagandha* improves cognitive and psychomotor performance in a healthy brain.
Researchers at Nizam’s Institute of Medical Sciences in Hyderabad, India, worked with 20 healthy male volunteers. In this double-blind, placebo-controlled trial participants were given 250 mg capsules of standardized Ashwagandha extract for 14 days. Significant improvements in reaction times were reported at the end of the trial. The study suggests that Ashwagandha extract improves cognitive and psychomotor (physical reaction) performance even when you’re in the best of health.[14]

**Ashwagandha to the rescue**

Ashwagandha undoes damage to the brain caused by chronic stress and helps keep it healthy. Ashwagandha improves cognitive function. Glycowithanolides, one of the many compounds found in this herb, reduces cortisol. And overall energy levels are enhanced through optimizing mitochondrial function. It also has GABA-mimicking effects in the brain. Comparable to the effects of prescription benzodiazepines like lorazepam (Ativan).[15]

Ashwagandha actually helps with a lot more than that, but it is surprising how one herb can have so many positive effects. There are several theories and there are many active ingredients within ashwagandha. In layman’s terms they get called the same thing “withanolides” but actually there is a lot going on and even a lot of difference between the types of withanolides. So even though ashwagandha is just one plant, there are several different molecules going to work on the body simultaneously.

**CONCLUSION**

Rasayana is novel concept. Hardly any of health sciences is found to have put thrust as huge as Ayurveda has. Hence treatment of any disease would not be complete without using Rasayana. Proper understanding and application of this concept in practice of Ayurveda would only lead to perfect and precise treatment. No doubt, Rasayana is very important viewpoint expressed in classical treatises and is boon to the world. On the basis of some study it is concluded that Ashwagandha is a medicinal plant used in Ayurveda since a long time as a Rasayana. Various experimental & clinical trials the ancient claims of its therapeutic claim as an adaptogene, aphrodisiac, anxiety, cognitive and neurological disorders, inflammation, liver tonic, anti-inflammatory, antibacterial, anti ageing, anti oxidant activity along with its thyrotrophic effects and effect on Parkinson’s disease that make a potent & effective herbs. That means it’s an herb with properties that help the body cope with all kinds of stress. It’s unique in that it causes the body to “normalize”, thus giving us energy when we need it during the day, or making us sleepy at night. It makes us function how we should function while being non addictive and safe. It’s been known for centuries to have wonderful healing properties. However number of studies are required in future to validation its effectiveness.
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