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Ashwagandha in treatment of insomnia : A Review

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Abstract:

Ayurveda, the science of life, suggested that *Aahar* (diet), *Nidra* (sleep) and *Brahmacharya* (celibacy) plays an important role in maintaining healthy life. *Nidranasha* or *Anidra* (insomnia) is a common neurological disorder having difficulty in initiating or maintaining sound sleep. A Conventional medical science frequently prescribes sedative and hypnotic like benzodiazepines drugs as a therapy of insomnia, which shows various side effects like tolerance and dependency. In traditional system several herbs are reported for treatment of insomnia. In this review, we have *emphasises* the role of Ashwagandha (*Withania somnifera*) towards the treatment of Insomnia.

Introduction-

Ayurveda, the science of life, suggested several *Siddhantas* (principles) to maintain healthy life. One of the most

important principles mentioned three *Upastambha* (sub-supporting pillars) i.e. *Aahar* (diet), *Nidra* (sleep) and *Brahmacharya* (celibacy), executing an

important role in maintaining the health [1]. *Aahara* (Diet) is the first which directly affects the life by causing various problems with health & mind. Changes in diet habit, changes in the timing of diet etc. may cause problems related with digestive tract [2]. *Bramhachary* (Celibacy) is a pillar which also affects on the healthy status of the body. It means controlled sex, if done at proper age and at proper time it preserves the body or it is harmful if done in a wrong or non-scientific way [3].

Nidra (Sleep) also play important role in healthy life. By getting a good quality & sufficient sleep one can get ready for new work. A sound sleep in the night regenerates the power of the mind and body to accept new challenges, maintains health, proficiency and emotional well-being [4]. In daily routine a person can't concentrate on sufficient and in time sleep, so he is suffering from many problems related with mind & body. Researches show that improper sleep can increase risk of developing obesity, diabetes, high blood pressure or heart disease [5]. *Nidranasha* or *Anidra* (insomnia) is the difficulty in initiating or maintaining sound sleep or waking up early without complete sleep and unable to sleep again, or waking up with a feeling of tiredness and exhaustion [6,7]. Insomnia is a most common neurological disorder, with an estimated incident of 10-15% in general population and 30-60% in elderly population [8]. It is closely linked with certain other diseases including obesity, cardiovascular diseases, depression, anxiety, mania etc., due to behavioral, hormonal and *neurochemical* alternations [9, 10]. Chronic insomnia could be primary or secondary. In primary insomnia a person

may have Difficulty in initiating or maintaining sleep for at least a month that occur independently of any known physical or mental condition. Secondary insomnia may occur due to medical, psychological or drug related causes [11, 12]. As insomnia is both a symptom and a disorder in itself, detailed evaluation of the problem is imperative before reaching a clinical diagnosis [13]. Sleep disturbance occurring at least three times a week for at least 1 month and causing either marked distress or interfering with social and occupational functioning is must for its diagnosis [14]. Insomnia may be diagnose by presence of difficulty in initiating sleep (going- off to sleep), difficulty in maintaining sleep (remaining asleep) or non-restorative sleep where despite an adequate duration of sleep, there is a feeling of not having rested fully (poor quality sleep). An insomniac patient may suffer from headache, drowsiness, day-time sleepiness, lack of concentration, impaired memory, fatigue etc. Conventional medical science frequently prescribes sedative and hypnotic like benzodiazepines drugs as a therapy of insomnia [15], which has various side effects like tolerance and dependency.

Etiology of *Nidranasa* (Insomnia)

The etiological factors of insomnia provided in *Ayurveda* includes dietary consumption of food which is predominant in dry property barley excessive exercise and fasting, intercourse, hunger and uncomfortable bed, Therapeutic causes such as excessive induced *Vamana* (emesis), *Virechana* (purgation), *Nasya* (nasal medications), *Raktamokshana* (bloodletting), *Dhooma* (medicated smoke), *Swedana* (sudation),

Anjana (collyrium), can also cause *Nidranasha*. Psychological causes- fear, anxiety, anger, Apart from this excessive joy, sorrow, greed, agitation. *Acharya Susruta* mentioned reasons for loss of sleep as increased condition of *Vayu*, increased condition of *Pitta*, the mental harassment or increased stage of mind, weakness, accidents, hurt or any injury [16].

Mind also has an important role in the loss of sleep. *Tamo Guna* of mind helps in creating sleep. It is associated with *Kapha Dosha* which helps in generation of sleep. When our mind gets disturbed due to any thought, it increases *Rajo Guna* which closely resembles with the *Vata Dosha*. Hence increase in *Rajo Guna* ultimately increases *Vata Dosha* & decreases the effect of *Tamo Guna* which landing the person in insomnia. Weakness may also cause the loss of sleep. According to Ayurveda weakness generally occurs due to the dominated *Vata Dosha*. Apart from this *Ruksha Guna* (dry property) of *Vata Dosha* causes weakness in the body. Accident, hurt or injury may also cause insomnia or *parasomnia*. In *Ayurveda* this term is referred as "*Abhigataja Vyadhi*". Traumatic injury can cause pain in the body and this discomfort causes disturbance in the sleep. Pain is termed, as *Shula* in *Ayurveda* and it is a primary symptom of the *Vata Dosha*. Hence increase in *Shula* ultimately causes increase in *Vata Dosha*, which directly affects sleep [17, 18].

Ashwagandha in treatment of insomnia

Botanical Name- *Withania somnifera*

Family- *Solanaceae*

Common Name - *Withania*, Winter Cherry, Indian Winter Cherry, Indian Ginseng, Ashwagandha

Part Used - Roots, Leaves

Rasa Panchak

Rasa- Katu tikta, kashaya

Guna- Snigdha, laghu

Veerya- Ushna

Vipaka- Katu

Effect on *Tridosha*- Balances *tridosha* especially *kapha* and *vata*

The biologically active chemical constituents of *Withania somnifera* include alkaloids (*isopelletierine*, *anaferine*, *cuseohygrine*, *anahygrine* etc.), steroidal lactones (*withanolides*, *withaferins*) and *saponins* [19]. Active principles of *Ashwagandha* like *acylsterylglucosides*, *sitoinosides* VII–X and *Withaferin-A* have been shown to have significant anti-stress activity against acute models of experimental stress [20].

The root smells like horse ("*ashwa*"), hence it is called as *Ashwagandha* (on consuming it gives the power of a horse). It is commonly used in emaciation of children (when given with milk, it is the best tonic for children), debility from old age, rheumatism, vitiated conditions of *vata*, *leucoderma*, constipation, insomnia, nervous breakdown etc [21]. *Ashwagandharishta* prepared from it is used in anxiety, memory loss, syncope, etc. It also acts as a stimulant and increases the sperm count [22].

In *Ayurveda* *ashwagandha* is considered a *rasayana* herb. The species name *somnifera* means "sleep-inducing" in Latin, indicating that to it induces sedation. *Withania somnifera* is one of the major herbal components of geriatric tonics mentioned in Indian systems of medicine. This plant is also claimed to have potent life prolonging

properties, have regenerative qualities so that it used for the treatment of nervous exhaustion, memory related conditions, insomnia [23].

In one of the article it was stated that, ashwagandha is effective in insomnia but does not act as a sedative, its *rejuvenative* and *nervine* properties may produce energy which in turn help the body to settle and sleep. Thus it helps the body to address a stress related condition rather than masking it with sedatives. A herb that rejuvenates the nervous system, erases insomnia and eases stress. *Ashwagandha* has also been shown to lower blood pressure and is highly effective in stopping the formation of stress induced ulcers. One of the special properties of *Ashwagandha* is that it will enhance *ojas*, which allows consciousness to flow within the body. *Ashwagandha* root drug finds an important place in treatment of nervous disorders and epilepsy. Dried roots are used as tonic as a sedative. *Ashwagandha* has anti-stress, antioxidant, mind-boosting, *immunenhancing* and rejuvenating properties [24, 25]. Various studies indicate that ashwagandha possesses GABA-mimetic, anxiolytic, antistress, antidepressant, memory enhancing, *antiparkinsonian* activity. Also, *Ashwagandha* stimulate neurite outgrowth in a dose- and time-dependent manner in human *neuroblastoma* cells [26, 27, 28]. *Ashwagandha* powder (root, leaves or whole plant), induces sleep in humans on oral consumption. Further, oral administration of *Ashwagandha* root extract induced sleep in rats [29, 30]. In one of the study, it was reported that ethanol extract that contain high ratio of *withaferin A* and *withanone*, failed to

induce sleep in mice, indicating that *withanolides* might not be involved in sleep promotion. Whereas, *Triethylene glycol*, which is also an active component of ashwagandha leaves, is a potent sleep-inducing molecule. *Triethylene glycol* increased frequency of NREM sleep episodes suggesting that *Triethylene glycol* has potential to generate sleep and that it increases NREM sleep by frequently entering into sleep via targeting sleep generation mechanism [31].

Conclusion

Ashwagandha (*Withania somnifera*) is very revered herb of the Indian Ayurvedic system of medicine as a *Rasayana* (tonic). Various studies indicate that ashwagandha possesses insomnia, GABA-mimetic, *anxiolytic*, *antistress*, antidepressant, memory enhancing, antioxidant, mind-boosting, *immunenhancing* *antiparkinsonian* activity. Multiple health benefits featured in this herbal supplement makes it as a perfect rejuvenator of physical and psychological health. In one of the study, it was reported that ethanol extract that contain high ratio of *withaferin A* and *withanone*, failed to induce sleep in mice, indicating that *withanolides* might not be involved in sleep promotion. Whereas, *Triethylene glycol*, which is also an active component of *ashwagandha* leaves, is a potent sleep-inducing molecule. *Triethylene glycol* has potential to generate sleep and that it increases NREM sleep by frequently entering into sleep via targeting sleep generation mechanism.

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