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## MEDHYA RASAYANA IN MANAGEMENT OF NEUROLOGICAL DISEASE: A REVIEW OF CLINICAL STUDIES

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### Abstract

There is immense need to develop a highly potent drug candidate with less adverse effect and potential to mitigate stress, anxiety and neurological damage along with rejuvenating bioactivities. *Ayurveda* provides a list of herbs owing the multidimensional utility in various neurological conditions. *Medhya Rasayana* can be referred as nootropic drug which are helpful in enhancing memory, cognition, intelligence and nerve functions. So, in this we conducted a comprehensive review on clinical studies conducted till now on *Medhya Rasayana* in neurological disease. For conducting review several databases were searched. *Medhya Rasayana* is useful for enhancing one's capacity for recall, grasping, discriminating, and other cognitive abilities. Its effectiveness in treating a variety of neurological diseases has been supported by numerous clinical investigations.

**Keywords:** *Medhya Rasayana*, neurological disease, Ayurveda, Alzheimer, Memory, Nootropic, Parkinson

### 1. Introduction

Nervous system, a complex of organs and systems that is responsible for the body's basic functions. It also controls and coordinates its activities; it comprises two areas: a central nervous system (CNS) that comprises the brain and spinal cord and is considered the central processing station, and a peripheral nervous system (PNS), which includes all other neural elements that transmit sensory information from the muscles, tissues, and nerves within the body [1]. Neurological disorders refer to conditions in which the CNS is affected; due to brain injury, nerves damage, altered biochemical aspects, or even the unknown cause, but the effects on the nervous system are nonetheless observable. Elderly people are particularly at risk of developing these diseases

[1]. Neurological disease layout to be the greatest threat towards public health including more than 600 disease conditions, among which most common prevailing are dementia, epilepsy, headache, multiple sclerosis, neuroinfections, huntington's disease, muscular dystrophy, neurological disorders associated with malnutrition, pain associated with neurological disorders, parkinson's disease, alzheimer's disease, stroke and traumatic brain injuries [2]. According to world health organisation (WHO), neurological disorder contributes to total of 6% of global burden of disease. Neurologic disease not only contributes to mortality rate but also cause disability. Various recent report commence dementia, epilepsy, migraine, and stroke to rank in the top 50 causes of disability-adjusted life years (DALYs) [3]. In next decade, neurological burden of disease is expected to grow exponentially in low and middle income countries (LMICs) and also cost-effectiveness of interventions to improve neurological care in these settings remains limited. Also, most studies in India have shown a high disease burden in the past three decades for specific diseases including stroke, epilepsy, headache, Parkinson's disease, in and dementia, mostly neurological disorders contribute to DALYs (276 [95% UI 247–308] million) and lead to cause of deaths (9.0 [8.8–9.4] million). Absolute number of deaths and DALYs commencing from all neurological disorders combined increased deaths by 39% and DALYs by 15%. Among all neurological disease four largest contributors of DALYs were stroke (42.2% [38.6–46.1]), migraine (16.2% [11.7–20.8]), Alzheimer's and other dementias (10.4% [9.0–12.1]), and meningitis (7.9% [6.6–10.4]) [4]. Overall, the reports shown that over the last 27 years, burden of neurological disorders has increased and is likely to be increased in the future due to aging of the population and population growth, thus placing an increasing demand on already overstretched resources and services for patients with neurological disorders [5].

Ayurveda(Indian system of medicine) describes a group of medicinal plants named “*Medhya Rasayana*” that can be used singly or in combinations having multiple benefits, specifically improving memory and intellect by *Prabhava* (specific action) [6,7]. It comprises of group of four herbs *Mandukaparni* (*Centella asiatica*), *Yastimadhu* (*Glycyrrhiza glabra*), *Guduchi* (*Tinospora cordifolia*) and *Shankhapushpi* (*Convolvulus pleuricaulis*). *Medhya Rasayana* is made up of two *Sanskrit* words; *Medhya* meaning intellect or cognition and *Rasayana* meaning rejuvenation therapy that on regular practice will boost nourishment, health, memory, intellect, immunity and hence longevity. In modern medical terminology *Medhya rasayana* can be referred as nootropic drug which are helpful in enhancing memory, cognition, intelligence and nerve functions<sup>6,7</sup>. *Ayurvedic* classical implies it to pose potential in curing diseases and enhancing longevity of life, strength, digestion, skin complexion, voice texture, memory, cognition, retention power, intellection and nerve functions [7,8]. There are many scientific evidences that indicate its role in treatment of psychiatric, psychosomatic diseases, depression and mental disorder. Also this therapy tends to attain sedation, calmness, tranquility, stimulation of activities of brain, psychotropic action, produce neuro-nutrient effect by improving cerebral metabolism, relieve from stress, anxiety and depression [8]. *Rasayan* drugs could be used in stem cell therapy and may be beneficial to regenerate tissues after the disease [9].

Although there are many studies available but still there is lack of potential treatment. So, taking all these *Ayurvedic* and scientific evidence in consideration, comprehensive and detailed review was conducted in this study regarding clinical studies of *Medhya Rasayana* for its neuroprotective effects in neurological disease.

## 2. Methodology

A number of widely used databases, including SciFinder, Google Scholar, MEDLINE, EMBASE, Scopus, PubMed, and Science Direct, were utilised to retrieve published papers (up until April 2023). We looked for and extracted published literature relating to clinical reports of *Medhya Rasayana* for its neuroprotective effects using the keywords "*Medhya Rasayana*", "neuroprotective", "nootropic", "anticonvulsant", "anti-depressant", "anti-stress", "Parkinson's disease", "Alzheimer's disease", and "mechanism of action". The language of searches was limited to English.

## 3. Clinical reports

### 3.a. Short term memory loss

To determine the effectiveness of *Medhya Rasayana* and *Yogic* practises in short-term memory of school-age children, a randomised, open, prospective, and comparative study including 90 subjects was conducted over the course of three months. The control group (group A) for three months of silent observation received no other treatment. While subjects in group B were administered with *Choorna* (powder) of four *Medhya Rasayanas* at a dose of 2 g twice daily with milk. It was recommended that members of group C regularly engage in asana, pranayama, and dhyana.

The results of research demonstrated that, of the three groups, group B treated with *Medhya Rasayana* changed in the most significant and efficient way improve the short-term memory test. In test of the short mental status scale, group C treated with yogic practises had the most profound and effective changes with regard to the subjective and objective indicators. The procedure is inexpensive and without adverse effects, which may be advantageous for the neighbourhood. In comparison to group C, group B had a greater mean rise following the first follow-up. This demonstrates that *Medhya Rasayanas* operate quickly and accelerate memory development. Group B is therefore thought to be the most effective of the three groups overall [10].

### 3.b. Nootropic effect

The paediatric age group is especially important in this period of intense competition. In this study, the nootropic effects of *Medhya Rasayana* in the current environment are being investigated. A clinical investigation was undertaken on 37 ostensibly healthy children in a randomised open clinical trial with the proper parental agreement to assess the IQ effect of palatable sugar-based syrup called "*Medhya*" made from *Medhya Rasayana*. Two IQ scales, the Seguin form Board Test and the Weschler Intelligence Scale for Children (adapted for use in India), were used to assess the subjects' IQ. Syrup with an IQ of 70 or above, while individuals with an IQ of 70 or higher are statistically significant. In order to treat patients with mild to moderate mental retardation, syrup might be utilised [11].

### 3.c. Dementia

When someone has dementia, their capacity for thought and memory gradually deteriorates. Although there is no distinct classification for dementia associated with ageing, dementia is a key component of Alzheimer's disease. In our population, the number of elderly individuals will rise in the near future. It is notable that there are unexpected shifts or a gradual increase in our elderly population, especially without any clear goal and in tandem with economic growth. Because of this, it is extremely tough and difficult to meet the demands of elderly people, which is a pressing issue. Dementia's effects differ from person to person. It entirely depends on the person's personality, way of life, important relationships, and physical health prior to the condition [12]. Alzheimer's type dementia (DAT) is characterised by a progressive, irreversible decline in cognitive function that is linked to the appearance of senile plaques in the hippocampus region of the brain. It accounts for 60–80 percent of dementia cases and is the most prevalent type in middle-aged and older persons. In order to assess the effectiveness of *Medhya Rasayana Churna* in clinically diagnosed DAT patients between the ages of 50 and 80 years, an open clinical trial was carried out. For 12 weeks, 5gm of *Medhya Rasayana Churna* was administered twice daily after meals along with *Madhu* and *Ghrita* in uneven amounts. Physiological events were used to evaluate the therapeutic effect (51.56%). Thus, it may be said that this *Rasayana* is helpful for Alzheimer's-type dementia [12].

### 3.d. Menopause syndrome

Menopause is a physiological event in the women with 50 and above of age. Due to hormonal variation women gets psychological, somatic and urogenital symptoms, it is termed as Menopausal syndrome in the contemporary science. Only 50.9 % of women undergo hormonal therapy, rest of the women will be with family and social relation and emotionally hampered in day today activities. In this context an attempt is made out to evaluate the efficacy of *Medhya Rasayan* in the physiological events of menopause [13].

An investigation is being done among 20 patients over the course of 90 days to determine the effectiveness of *Medhya Rasayan* in treating the psychological side effects of menopause and to rate the patients' quality of life. Two 500mg *Medhya Rasayana* tablets are taken with milk. The findings show that *Medhya Rasayana* significantly reduces the psychological symptoms of the study's female participants. Positive emotions have increased physiological events overall by 56.9%. Both the WHO QOL evaluation and the psychological component of the MRS scale increased by 67.6% and 70.5%, respectively [13].

### 4. Conclusion and future perspective

*Medhya Rasayana* are beneficial to improve the power of retention, power of grasping, power of discrimination and power of recollection etc. Many clinical trials has been evidenced for its efficacy in improving many neurological disease. But on detailed reviewing, it was found that there are very few clinical studies conducted on *Medhya Rasayana*, that too in a very small sample size. It is a need of the time to study the efficacy of these *Medhya Rasayana* therapy collectively in large sample size, among multi centres. Also dosage form need to be standardized that in which form, it should be used.

## 5. References

1. Rizketal(2018). Neurological Disorders: Causes and Treatments strategies. IJPMN, Volume 5, Issue 1, 32-40.
2. [https://vsearch.nlm.nih.gov/vivisimo/cgi-bin/querymeta?v%3Aproject=medlineplus&v%3Asourcemedlineplusbundle&query=neurologic+disorder&\\_ga=2.205189200.1159988620.1644511427-1816749717.1644511424](https://vsearch.nlm.nih.gov/vivisimo/cgi-bin/querymeta?v%3Aproject=medlineplus&v%3Asourcemedlineplusbundle&query=neurologic+disorder&_ga=2.205189200.1159988620.1644511427-1816749717.1644511424)
3. Murray C J, Vos T, Lozano R, Naghavi M, Flaxman A D., and others. 2012. “Disability-Adjusted Life Years (DALYs) for 291 Diseases and Injuries in 21 Regions, 1990–2010: A Systematic Analysis for the Global Burden of Disease Study 2010.” *The Lancet* 380 (9859): 2197–223. doi:10.1016/S0140-6736(12)61689-4.
4. Nadig R Namapally USK Sarma GRK Mathew T. Outpatient burden of neurological disorders: a prospective evaluation of 1500 patients. *Neurol India*. 2019; 67: 708-713
5. *Lancet Neurol*. 2019 May; 18(5): 459–480.doi: 10.1016/S1474-4422(18)30499-X
6. Kulkarnietal(2012). Nootropic herbs (Medhya Rasayana) in Ayurveda: An update. *Pharmacognosy reviews*, 6(12), 147–153. <https://doi.org/10.4103/0973-7847.99949>
7. Agnivesha. *Charaka samhita*, English translation by Sharma RK, Dash B. Vol-III, Chikitsa Sthan (1-3/30.31), Chaukhambha Sanskrit series office, Varanasi. (2010)
8. Niraj S, Varsha S. Role of Medhya Rasayanas (nootropic drugs) in developmental disabilities of children. *Int J Health Sci Res*. 2019; 9(6):315-322.
9. Ray S, Ray A (2015). Medhya Rasayanas in Brain Function and Disease. *Med chem* 5: 505-511. doi: 10.4172/2161-0444.1000309
10. Sarokte AS, Rao MV. Effects of Medhya Rasayana and Yogic practices in improvement of short-term memory among school-going children. *AYU [serial online]* 2013 [cited 2023 Apr 15];34:383-9. Available from: <https://www.ayujournal.org/text.asp?2013/34/4/383/127720>
11. Sonia Sharma et al: Clinical Study Of Medhya Rasayana & Its Evaluation On Intelligence Qoutient. *International Ayurvedic Medical Journal*. 2018. Available from: [http://www.iamj.in/posts/images/upload/1116\\_1120.pdf](http://www.iamj.in/posts/images/upload/1116_1120.pdf)
12. Ghadage PA, Gupta K, Niranjana Y. Management of Dementia of Alzheimer’s type (DAT) with Medhya Rasayana Churna-Short communication. *Int. J. AYUSH CaRe*. 2021; 5(4):359-364
13. Jiji Varghese, Vijayendra G Bhat, Aniruddha. An open clinical study to evaluate the effect of Medhya Rasayana in manasika bhava of rajonivrutti w.s.r to menopausal syndrome. 2020 *JETIR* September 2020, Volume 7, Issue 9, pg 146-156.