



## Research Article

## EFFICACY OF *SHIVA GUTIKA* WITH *SARASWATARISHTA* IN THE MANAGEMENT OF AGE ASSOCIATED MILD COGNITIVE IMPAIRMENT (AAMCI)

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### ABSTRACT

**Objective:** To find the efficacy of *Shiva gutika* with *Saraswatarishta* in management of Age Associated Mild Cognitive Impairment (AAMCI). To review the literature of mild cognitive impairment, *Jara*, and aging as per modern science and *Ayurveda*. To observe side effects of the drug if any. To access effect of drug on other signs and symptoms of *Jara*.

**Method:** Open Trial study was conducted on 25 patients having AAMCI and were selected for the study randomly. The patients received 1gm *Shiva gutika* once a day with 40ml *Saraswatarista* as *Anupan* for 3 months.

**Assessment Criteria:** Improvement in all the six cerebral higher functions on the basis of various tests such as MMSE, CAMCOG (CAMDEX), ADL/IADL, GDS.

**Follow up:** 0, 15th, 30th, 45th, 60th, 75th, 90th day.

**Duration:** Total duration study was 90 Days. This study was carried out in Bharati Vidyapeeth Deemed University College of Ayurved & Hospital Pune in Year 2010 and 2011.

**Results:** Comparing all the symptoms before and after treatment had significant action in age associated mild cognitive impairment (AAMCI). No side effects of the drug during clinical trial were seen.

**Statistical Analysis:** The Statistical Analysis reveals that *Shiva gutika* with *Saraswatarista* as *Anupan* effective in age associated mild cognitive impairment (AAMCI).

**Conclusion:** *Shiva gutika* with *Saraswatarista* shared significant results in AAMCI. The overall effect of drug on ADL & IADL showed significant result.

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### INTRODUCTION

The problem of ageing is common globally. In India also with improved health care facilities and standard of living, life expectancy is going up. It has risen from 57 years in 1990 to 65 years today. The present number of senior citizens is 65 million but is expected to cross 177 million by the year 2025. The incidence of chronic degenerative disease increases and the incidence of morbidity is higher, as the age increases the decline in cognitive abilities and memory with advancing age is well documented. Cognitive dysfunction often is taken for granted both by health care practitioners and by the public at large. A pattern of progressive cognitive decline which usually becomes noticeable in middle age has traditionally been dismissed as part of getting old. This assumed casual

link between ageing and cognitive dysfunction is not scientifically supportable, as many individuals age into their 90s with only modest loss of mental skills.<sup>1</sup>

But for people who show measurable cognitive decline, failure to positively interval can prove disastrous, as abnormally lowered cognitive performance during the sixth decade has been linked to increase risk of dementia in later life.<sup>2</sup>

Age related cognitive dysfunction (ARCD) signifies a symptom cluster of accelerated mental decline documented after the age of 50. By definition age related cognitive dysfunction is an age linked condition and not a disease. Although ARCD is not as

severe as dementia. The worst causes of ARCD are at higher risk for dementia.<sup>3</sup>

A cognitive problem that has begun to subtly interfere with daily activities is referred to as mild cognitive impairment (MCI). MCI refers to the presence of cognitive impairment that is not severe enough to meet the criteria of dementia. A sizeable proportion of persons with MCI will progress to frank dementia usually caused by Alzheimer's disease (AD). The conversion rate from MCI to AD is ~12% per year.

A cross sectional study done on Indian population showed that the prevalence of MCI is 14.89% in elderly patients.

In Ayurveda old age (*Jara*) is considered at the age of 60 to 70 years.<sup>6</sup> It is characterized by decline of *Dhatu*, *Indriya* (sense organ), *Bala*, *Vali*, *Palitya*, *Khalitya*, *Karma-akshma*, *Kasa* and *Shwasa*.<sup>7</sup> In aging the somatic changes are clearly observed, the mental variations include *Grahana-Dharana-Smarana-Vachana-Vidnyana hani* along with *Pourush-Parakrama-Utsahakshaya*. Cognition can be correlated with *Medha*. (*Cha. Sa.*) *Dhi* is the component of *Buddhi*, which always perceives the knowledge correctly. *Buddhi* is broad term. As Mentioned above *Medha* and *Budhi* are synonyms. *Dhi*, *Dhruti*, *Smruti* along with *Mana* are its subcomponents.<sup>9</sup> Decline in *Medha* (intellect) starts from the 4<sup>th</sup> decade of life.

*Ayurved* has group of certain highly appreciated for their effect to promote various faculties of human body. In this respect *Rasayana* is one of the important branch of *Asthang Ayurveda* which deals with the promotion of physical & mental health. All *Rasayana* drugs are supposed to improve mental faculties in addition to their beneficial effect on the body.

In Ayurveda science *Jara chikitsa* developed as a specialization. *Rasayan* therapy indicated in treating *Jara* (natural aging). Achievements of this branch of medicine are still unsatisfactory. So this study was undertaken to observe the effects of *Shiva gutika* as a *Rasayan dravya* on AAMCI. *Shiva gutika*<sup>11</sup> and *saraswatarishta*<sup>12</sup> mentioned in *Bhaishya Ratanavali* was undertaken as a trial drug. The present study was designed with the objectives of understanding Age associated mild cognitive impairment in Ayurvedic parlance and to evaluate the efficacy of *Shiva gutika* with *Saraswatarishta* in the management of Age associated mild cognitive impairment. All the drugs used in *Shiva gutika* and *Saraswatarishta* were authenticated and drug was prepared at Bharati Vidyapeeth College of *Ayurved Pharmacy*. Standardization of final drug was done at Bharati Vidyapeeth Deemed University College of *Ayurved Pharmacy Pune*.

## Materials and Method

Patients attending OPD of Kayachikitsa Dept., College of Ayurved, Bharti Vidyapeeth, Pune suffering from Age associated mild cognitive impairment,

fulfilling the criterion of selection, were selected irrespective of Cast, race, religion, between the age group of 60 to 80 yrs. A detail examination of patient was done before and after the treatment.

## Assessment criteria

- 1) Subjective parameter:** Improvement in all the six cerebral higher functions on the basis of various tests
- MMSE (Mini Mental State Examination)
  - CAMCOG (CAMDEX)( Cognitive Function Test)
  - ADL/IADL (Instrumental Activities of Daily Leaving)
  - GDS (Geriatric Depression Scale)
- MMSE (Total Score 30) :** Normal Score Above 24 and below 24 is positive
  - CAMCOG (CAMDEX) (Total Score 100) :** Normal Score Above 78 and below 78 is positive

**2) Objective parameters:** MRI-BRAIN was done before treatment

## Inclusion Criteria

Considering different definition of Mild Cognitive Impairment, the inclusion criteria for present study were as follows.

- Age group above 60 years and below 80 years, selection of patient was irrespective of sex, work and socioeconomical status.
- The patients whose score on Mini mental state examination (MMSE)<sup>11</sup> – minimal state examinations <24 were included.

## Exclusion criteria

- Patients having major psychological or major neurological problems.
- HIV infected patients /AIDS.
- Malignancy.
- IHD, Hypothyroidism, uncontrolled DM

## Drug & Dose

The selected patients were administered *Shiva gutika*, 1 gm once in a day in *Rasayan kal* with *Saraswatarishta* (40ml) as a *Anupan* for the period of 3 month. After the completion of the treatment, the follow up study of 90<sup>th</sup> day's (after every 15 th day) was done to note the recovery of signs and symptoms. A generalized *Pathy-apathya* is advised to each patient.

## Investigations

Complete Blood count, Urine (routine and microscopic) were carried out.

## Criteria of Assessment

Improvement in the patient was assessed mainly on the basis of CAMCOG scale.<sup>12</sup> Also the improvement in the signs and symptoms of the disease was also assessed.

## Observations & Its Graphical Representation

Score tables of six cerebral higher functions on the basis of various tests (scale/questionery).

**Tables 1: Sex wise distribution**

Females	15
Males	10

**Tables 2: Attention and Orientation**

Attention and Orientation	
Visit 1	12.72
Visit 2	12.72
Visit 3	13.12
Visit 4	13.36
Visit 5	13.68
Visit 6	13.76
Visit 7	13.84

**Tables 3: Memory**

Memory	
Visit 1	20
Visit 2	20.56
Visit 3	20.68
Visit 4	20.84
Visit 5	21.32
Visit 6	21.56
Visit 7	21.56

**Tables 4: Fluency**

Fluency	
Visit 1	11.24
Visit 2	11.4
Visit 3	11.48
Visit 4	11.48
Visit 5	11.88
Visit 6	11.96
Visit 7	12.2

**Tables 5: Language**

Language	
Visit 1	16.48
Visit 2	16.88
Visit 3	16.96
Visit 4	16.96
Visit 5	17.28
Visit 6	17.44
Visit 7	17.44

**Tables 6: Visuo Spatial**

Visuo Spatial	
Visit 1	10.64
Visit 2	10.96
Visit 3	11.04
Visit 4	11.28
Visit 5	11.92
Visit 6	12.08
Visit 7	12.16

**Tables 7: ADL (Activities of Daily Living)**

ADL	
Visit 1	11.48
Visit 2	11.32
Visit 3	11
Visit 4	10
Visit 5	9.54
Visit 6	9.08
Visit 7	9.24

**Tables 8: IADL (Instrumental Activities of Daily Living)**

IADL	
Visit 1	18.08
Visit 2	18.24
Visit 3	18.92
Visit 4	19.68
Visit 5	20.58
Visit 6	21.2
Visit 7	21.52

**Tables 9: Total mean Score**

Total Scores	
Before	70.84
After	77.12

CAMCOG (Cognitive Function Test Total Score 100): Normal Score Above 78 and below 78 is positive.

**Observation and results**

Around 200 patients were screened for MCI to include 25 patients in the study. Total 25 patients were registered during the study. It is found that almost 80% of the patients were having other systemic disorder like HTN, DM, and Arthritis etc. The incidence of female was more than male (female patients = 15, male patients = 10). But sample size was small so cannot conclude that MCI occurs more in female. 48% patients (n= 12) were from middle class socioeconomic society. There were 92% (n= 23) patients having the habit of untimely food consumption & *Virruddha* ahara, which indicates effect on aging & MCI. Out of the total patients, 84% (n=21) no. of patients had *Vishamagni* which indicates predominance of *Vatadosha* & 16% (n=4) patients had *Mandagni* which indicates *Agnikshaya*. Out of the total patients, 80% (n=20) patients were found to have *Chinta*. 68% (n=17) of patients having *Nidranasha*.

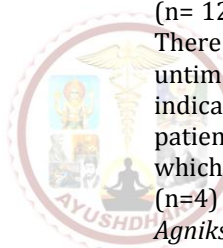
*Shiva gutika* and *Saraswatarishta* showed highly significant results on, attention and orientation (P<0.001); memory enhancement (P<0.001); fluency (P<0.001) and language (P<0.001). There is significant improvement in Visio-spatial parameter (P<0.01). With regard to CAMCOG scale there is 78.77% improvement which is highly significant (P<0.001).

**DISCUSSION**

In *Ayurveda* science *Jara chikitsa* developed as a specialization. *Rasayan* therapy indicated in treating *Jara* (natural aging). Achievements of this branch of medicine are still unsatisfactory. So this study was undertaken to observe the effects of *Shiva gutika* as a *Rasayan dravya* on AAMCI.

**Probable mode of action of *Shiva gutika* with *Saraswatarista***

*Shiva gutika* and *Saraswatarista* act at the level of *Agni* by stimulating and improving the functions of *Sadhakagni*. These drugs improve circulation of *Aaharras*, by opening and clearing the *Srotas*. Thus removes *Srotorodha*.



The pharmacological properties of the drugs are the resultant of the different permutations and combinations of the five *Bhuta*. The *Akashiya*, *Tejasa* and *Apya* drugs having the *Satva guna* predominance are mainly responsible for the promotion and nourishment of *Medha*, *Parthiva* drugs may also be helpful in the nourishment of the *Medha*. Elements predominant in *Vayu* act at the level of mind.

In addition to its primary effect on "*Medha*" as conceived in Ayurveda, the *Medhya Rasayana* drugs have specific effect on mental performance and higher central nervous system (C.N.S.) functions.

As far as the pharmacodynamics of *Medhya Rasayana* is concerned maximum drugs are having "*Shita Virya*" and "*Madhura Vipaka*" whereas some of them are "*Ushna Virya*" and "*Tikta Rasa*". *Medha* confines in to - *Grahana-Dharna - Smriti*. *Pitta* is *Ushna*, *Ashukari*, *Tikshna* and instinct or enhances the *Sattva* which helps to retain or recapitulate the things. Therefore *Pitta Vardhaka*, *Ushna Virya* drugs are considered as *Medhya* drugs. Secondly *Kapha* provides "*Dharana*" by "*Sthirita*" & "*Saumyata*" and thereby helps in retention of cognition. Hence *Shita Virya* and *Kapha Vardhaka* drugs are quoted as *Medhya* drugs. Thus it can be said that "*Ushna Virya Medhya*" drugs are helpful mainly in "*Grahana*" and "*Smarana*" functions whereas *Shita Virya Medhya* drugs are helpful in "*Dharana*" function. Therefore *Shiva gutika* and *Saraswatarishta* acts on *Buddhi* and improves in Mild cognitive impairment.

## CONCLUSION

In Ayurvedic literature detailed explanation of factors responsible for *Jara* & process of *Jara* are scattered. The study of these concepts correlates with concepts of aging in modern science. There is no particular & complete concept to explain the process of aging & AAMCI in modern science till date. *Shiva gutika* and *Saraswatarishta* has showed positive results in AAMCI. The word aging correlated with *Jara*. The old age considered by Charaka at 60 yrs & above is similar to that of modern geriatrics which is accepted universally. *Shiva gutika* with *Saraswatarishta* is effective in AAMCI. As per statistical analysis *Shiva gutika* with *Saraswatarishta* showed positive result on CAMCOG scale. No serious adverse effects were found both groups.

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