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IMPROVEMENT OF *MEDHA* – AN IMPERATIVE NEED OF THE ERA

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ABSTRACT

Medha (Intelligence) is a phenomenon which makes a human special. Now it is the need of present epoch to interpret and conclude those ancient concepts in terms of modern sciences. *Medha* prevents an individual from indulging into *Prajnaparadha* (Failure of wisdom or intelligence). Authoritative text books has explained *Medhya Rasayanas* (Nootropics) and *Mandukaprni* is one among them. The purpose of the study is to assess the effect of *Mandukaparni* on *Medha* (IQ) of healthy volunteers. Thirty healthy volunteers fulfilling the criteria of *Swastha* and WHO Quality of Life Index were allotted into one group and *Medha* was assessed before and after treatment study design. All the subjects were given *Mandukaparni Churna* 12g per day along with milk for duration of 3 months. The subjects were followed up after 30 days. Marked improvement of *Medha* was observed which will be discussed in detail in the paper.

Keywords: *Medha*, *Medhya Rasayana, Mandukaparni,* Intelligence

INTRODUCTION

In this era of globalization there is a scope for making ancient system of medicine as paramount in health care system and this will be feasible with the help of exploring some of the quite less discussed aspects of intelligence and various methodologies that can be adopted to improvise the same .The study may be an eye opener for keeping the values of the same along with an opportunity to utilize well available natural resources for the upliftment of *Medha* (Intelligence) for building an excellent generation and also for preventing the high prevalence of disorders related to those with respect to memory and intelligence.

The word *Medha* is used to denote high intellect. *Medha* can be understood as the faculty of *Buddhi* which has the power to retain the experiences or knowledge and when needed it recalls that retained knowledge and it prevents an individual from indulging into *Prajnaparadha*.[1] The word '*Medha*' has been used mainly in 2 ways viz. *Grahana Shakti* (grasping power) and *Dharana Shakti* (retention power). *Acarya Caraka* has mentioned examination of *Medha* by inference of *Grahana Shakti* .[2] Due to *Medha* a person will be able to obtain the knowledge of existing objects and hence person becomes learned.[3] The change in the *Medha* according to *Vaya* is specific to each individual by considering *Acharya Sharngdhara*'s explanation of biological decline of *Medha* which starts after 30 years hence it should be nourished by extraneous supplements to maintain its normal functioning before this age.[4] Much emphasis on promotion of *Medha* has been given by ancient scholars and several naturally occurring medicinal plants under the category

'*Medhya*' have been explained.[5] *Mandukaparni* is one among them.

Properties and actions of *mandukaparni*

Mandukaparni is been explained under *Tiktaskandha*[6], *Vayasthapana Gana*[7] and in *Tiktavarga.*[8] Mandukaparni is having *Tikta, Kashaya, Madhura Rasa*[9], *Laghu, Sara Guna, Sheeta Virya, Madhura Vipaka, Balya Deepana, Hrudya Kaphapittahara Rasayana Ayushya Karma* along with a special quality of *Smrutiprada (Guduchyadivarga).*[10]The drug is well-known for its *Medhya Prabhava* .

OBJECTIVE OF THE STUDY: To evaluate the effect of *Mandukaparni Churna* on *Medha* of healthy volunteers.

MATERILAS AND METHODS

Study design: Study was a single blind clinical study.

Source of data: 30 Healthy individuals of either gender living and working in the campus of SDM college of *Ayurveda*, Hassan were selected irrespective of their gender, caste socio economic status etc. for the study

Method of collection of data: A special Performa was prepared by incorporating all aspects of *Ayurvedic* health assessment criteria and qualities of life and *Medha and Smruti* in *Ayurveda* as well as modern perspective.

Inclusion criteria: Healthy subjects of age group of 20-30 years were selected for the study.

Exclusion criteria: Beyond the age limit subjects with any type of psychosomatic disorders were excluded from the study.

Plan of study: Selected subjects were given the Performa for the assessment of *Medha* and *Smruti* before and after treatment. All the subjects were given *Mandukaparni*

Churna 12g per day along with milk for duration of 3 months after breakfast at 8.00 am in the morning. The subjects were followed up after every30 days till the completion of 90 days.

Criteria of assessment:

Assessment of *Smruti* (Memory): For the assessment of Memory P.G.I. Memory Scale - Recognition Cards of National Psychological Corporation, Agra was adopted without any modification. The PGI Memory scale (Pershad, 1977 and Pershad and Wig. 1988) provides a comprehensive and simple scale to measure verbal and non verbal memories on the basis of neurological theory. The scale contains 10 subtests like Remote memory, Recent Memory, Mental Balance, Attention and Concentration, Delayed Recall, Immediate Recall, Verbal retention for similar pair (VRSP), Verbal retention for dissimilar pairs (VRDP), Visual retention and Subtest for recognition.

Assessment of *Medha* (IQ): As Medha is mostly equated with IQ, assessment of IQ was done in the healthy volunteers. For the assessment of IQ Wechsler's Adult Performance Intelligence Scale published by MANASAYAN, School Block Shakarpur, Delhi (Translated and adapted by permission of original publisher and copyright holder, The Psychological Corporation, New York, U.S.A)was adopted without any modification. The scale contains 5 subtests namely Picture Completion, Digit Symbol, Block Design, Picture Arrangement and Object Assembly. The obtained raw score of each subtest was converted into scaled score with the raw score- scaled score equivalents table and the summation of the scaled score was converted to Intelligence Quotients.

Statistical analysis: The information gathered on the basis of above observations was subjected to statistical analysis in terms of mean (x), standard deviation (S.D.) and standard error (S.E.). The significance of differences within the groups were assessed using 'paired t' test at P<0.05, P<0.01 and P<0.001 levels.

OBSERVATION AND RESULTS

Effect of *Mandukaparni* on different subtests of the PGI Memory scale score: Attention and concentration score had a change from mean score of 9.88 to 11.74 after 90 days of drug administration with an improvement of 18.8% which was significant at the level of P <0.0001. Delayed recall score had a change from mean score of 9.22 to 9.92 after 90 days of drug administration with an improvement of 7.59% which was significant at the level of P <0.0001. VRDP score had a change with mean score of 9.18 to 12.03 after 90 days of drug administration with an improvement of 31.05% which was significant at the level of P <0.0001. Visual Retention score had a change with mean score of 12.74 to 13.66 after 90 days of drug administration with an improvement of 7.11% which was significant at the level of P <0.0001 as shown in table 1.

Table 1: Effect of *Mandukaparni* churna on subtests of PGI memory scale

Subtest	Mean BT	Mean AT	N	% IMPV	SD(+)	SE(+)	t	P
Remote memory	5.92	6	27	1.35%	0	0	1.00	>0.05
Recent memory	5	5	27	0%	0	0	0	>0.05
Mental Balance	8.25	8.96	27	8.61%	0.91	0.03	3.12	<0.05
Attention & concentration	9.88	11.74	27	18.8%	1.72	0.33	6.16	<0.0001
Delayed recall	9.22	9.92	27	7.59	0.26	0.05	4.44	<0.0001
Immediate recall	11.92	11.96	27	0.34%	0.19	0.03	1.00	>0.05
VRSP	5	5	27	0%	0	0	0	-
VRDP	9.18	12.03	27	31.05%	2.34	0.45	7.99	<0.0001
Visual Retention	12.74	13.66	27	7.11%	0.73	0.14	4.49	<0.0001
Subtest for recognition	10	10	27	0%	0	0	0	-

Observation of effect of *Mandukaparni* on mean score of subtests of the PGI Memory scale: Mean memory score had a mild change with mean score of 8.71 before treatment to 9.427 after 90 days of drug administration with an improvement of 7.48% which was significant statistically with a p value <0.05 as shown in table 2.

Table No.2 Effect of *Mandukaparni Churna* on Mean Memory Score

Memory Test	Mean BT	Mean AT	N	% IMPV	SD (+)	SE (+)	t	P
Mean memory	8.71	9.427	27	7.48%	3.130	0.98	2.357	<0.05

Effect of *Mandukaparni churna* on IQ
Observation of effect of *Mandukaparni* on subtests of Wechsler Adult performance Intelligence Scale: The subtests such as Picture completion, Digit symbol, Picture arrangement, Object assembly had a very significant effect with p value <0.0001.Block design subset was significant statistically with a p value <0.001.

Table 3: Effect of *Mandukaparni* on subtests of wechsler adult performance intelligence scale

SUBTEST	Mean BT	Mean AT	N	% Improvement	SD (+)	SE (+)	T	P
Picture completion	21.03	24.62	27	17.69%	1.64	0.31	10.25	<0.0001
Digit symbol	47.11	54.11	27	14.86%	11.03	2.12	6.04	<0.0001
Block design	35.55	37.77	27	6.24%	4.10	0.79	3.28	<0.001
Picture arrangement	29.96	32.40	27	8.14%	5.24	1.00	4.71	<0.0001
Object assembly	24.88	29.29	27	17.73%	5.10	0.98	5.22	<0.0001

Observation of effect of *Mandukaparni* on overall IQ scores of Wechsler Adult performance Intelligence Scale: Mean IQ score had a mild change with mean score of 115 before treatment to 123 after 90 days of drug administration with an improvement of 8.04% which was significant statistically with a p value <0.0001 as shown in table 4.

Table 4: Effect of *Mandukaparni churna* on IQ

IQTEST	Mean BT	Mean AT	N	% IMPV	SD(+)	SE(+)	t	P
IQ	115	123	27	8%	5.46	1.052	12.05	<0.0001

Comparison between mean memory and mean IQ score

Memory score had an improvement from 8.71 before treatment to 9.42 after the treatment by increase of 7.48% with a p value <0.05 which is significant statistically.

IQ score had an improvement from 115 before treatment to 123 after the 90 days administration of *Mandukaparni Churna*, by 8.04% improvement, with a p value <0.0001 which is extremely significant statistically as shown in table 5.

Table 5: Comparison between mean memory and mean IQ score

TEST	MEMORY	IQ
Mean BT	8.71	115
Mean AT	9.427	123
SD	3.130	5.46
SE	0.98	1.052
T	2.357	12.051
% Improvement	7.48%	8.04%
P value	<0.05	<0.0001
Level of significance	Significant	Highly significant

Implication of result

Age: The maximum numbers of volunteers were found in the age group of 25-30 yrs (73%). According to *Ayurveda* it is *Madhyamavastha*, in which *Pitta* remains dominant. So, balanced stated of *Pitta* in this age was observed responsible for good *Medha*. Also as per *Acharya Sharngdhara's* explanation about the sequential loss of biological qualities *Medha* is explained to get deteri-

orated in the decade of 30-40 .So the selection of this age group is relevant for the study.

Comparison of result in different *Shareerika Prakruti* Group: *Mandukaparni Churna* was more effective in *Pittapradhana Shareerika Prakruti* compared to *Vata* and *Kapha Pradhana Shareerika Prakruti*.

Comparison of result in different *Manasika Prakruti* Groups: *Mandukaparni Churna* was more effective in *Sattvapradhana Manasika Prakruti* compared to *Rajasika* and *Tamasika Pradhana Manasika Prakruti* people.

Effect of *Mandukaparni* on sleep before and after the treatment: *Mandukaparni Churna* effectively increased duration and onset of sleep after the administration of drug *Churna* for 90 days.

DISCUSSION

Discussion on the selection of drug: Since the study was aimed in healthy volunteers such drug which is having both *Rasayana Guna* and the *Medhya Prabhava* was selected for the study. Only a few no of works have been done till today as a *Medhya* Drug in healthy adults. So there was also a need to be explored.

Discussion on clinical study: This study was undertaken on the basis of the guideline for the assessment of *Medha* given by *Caraka "Medha Grahanena"*. Clinical study was carried out on 30 healthy volunteers. Among them total 3 volunteers left the treatment.

Sareerika Prakruti: In the study *Pitta Prakruti* volunteers were reported with more score (36%) as compared to other *Prakruti* (*Vata* 31%, *Kapha* 33%).This result is as explained in our classics that *Pitta Prakruti* persons are *Medhavi* which may be due to the *Teekshna Guna* of *Pitta*.

Manasika Prakruti: 51% of volunteers were found possessed with *Sattva Pradhana Manasa Prakruti* and 40% with *Rajas Pradhana Manasa Prakruti*. While assessing the *Medha* and *Smruti* it was observed that *Sattva* dominant volunteers got overall higher score as compared to *Rajas* and *Tamas* dominant volunteer. So, it clearly indicates the relationship between *Manasa Prakruti* and its impact on *Medha*

Nidra: Majority of the volunteers were having sound and sufficient (7 to 9 hrs.) sleep. *Ayurveda* and modern both the science accept the importance of proper sleep for *Medha.*10% of volunteers were having disturbed sleep in terms of onset and duration, before the drug administration and after the study there was an improvement in onset and duration in those people.

Discussion on comparison of effect of drug on *Smruti* and *Medha*: *Budhhi*, *Medha* and *Smruti* are the steps of same process. The process of recollection takes place properly only after the *Buddhi, Medha* and *Smruti* unite. One is incomplete without the rest. Retention of cognition takes place under the area of *Medha*. Recollection happens with the help of *Smruti*. Memory score had an improvement of 7.48%. IQ score there was an improvement of 8% which is slightly higher than that of total memory score. This is again confirming the explanation given by our *Acharyas* about the *Medhya* action of *Mandukaparni*, which was more emphasized than the quality of *Smrutiprada*. The act of retaining the knowledge for a longer duration of time may be due to action of the drug on *Teekshna Guna* of *Pitta* along with the *Medhya Prabhava*.

CONCLUSION

The present scenario of stress and memory related disorders and their high prevalence in the younger age group, along with the imperative need to sharpen the intellect to achieve high professional goals oblige us to select a drug which will help us to maintain the quality of Mind in a better way and thereby preventing the diseases pertaining to it. *Mandukaparni* is been

proved to be a drug which can fulfill the above demands which is evident from the study. A larger sample study for a longer duration and in a better palatable form may be required to establish the expediency of the drug so as to make it a part of daily diet.

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