



## A COMPARATIVE PHARMACOTHERAPEUTIC STUDY ON KASHMARYA (*GMELENA ARBOREA* LINN.) AND KUSHMANDA (*BENINCASA HISPIDA* COGN.) W.S.R TO ITS MEDHYA EFFECT

Vidya V , Mahesh T.S, Ravi Rao S, Subrahmanya P, Binu B  
Dept of Dravyaguna Vijnana, A.A.M.C. Moodbidiri, Mangalore, Karnataka, India

Received on: 14/01/12 Revised on: 20/02/12 Accepted on: 10/03/12

### \*Corresponding author

Email: ravisorake@gmail.com

### ABSTRACT

Ayurveda possesses potent time tested Medhya Dravyas used for enhancing intelligence. Kashmarya and Kushmanda are having the Medhya effect according to classics. Acharya Susruta has explained the Medhya effect of Kashmarya Phala. According to Priya Nighantu, Kushmanda is having Medhya effect. Totally 40 volunteers aged 16-30 years in whom IQ score ranged in between 70-139 were selected and assigned into two groups of 20 each for the clinical study. The patients were treated with Kashmarya syrup and Kushmanda syrup in Group A and Group B respectively. The duration of treatment was 1 month. Volunteers were assessed before treatment, 15<sup>th</sup> day, 30<sup>th</sup> day and a follow up of 1 month. The effects of treatments were assessed statistically on the basis of Wechsler's Adult's Intelligence Scale, before and after treatment. Clinically and statistically both the drugs shows significant results in the enhancement of Medha. Kashmarya was found to be better than Kushmanda in improving Medha.

**Keywords:** Kashmarya, Kushmanda, Medhya, Medha, Intelligence Quotient, WAIS.

### INTRODUCTION

The drugs promoting Medha (intellect) are termed as 'Medhya' drugs. Ayurvedic System of Medicine has mentioned several naturally occurring medicinal plants under the category 'Medhya'. By virtue of inducing mental upliftment as major influence several medicinal plants mentioned as 'Rasayana Drugs' in Ayurveda are primarily claimed as 'Medhya'. Further there is a special class of some Rasayana drugs called 'Medhya Rasayana' which is supposed to be having specific influence on higher brain functions.

Kashmarya and Kushmanda are having the Medhya effect according to classics. Kashmarya is botanically identified as *Gmelina arborea* Linn. grouped under the family Verbenaceae and Kushmanda is botanically identified as *Benincasa hispida* Cogn. comes under the family Cucurbitaceae. According to Acharya Susrutha Kashmarya comes under Bruhat Panchamoola and he has explained the Medhya effect of Kashmarya phala along with its Rasayana and Vrushya property<sup>1</sup>. According to Priya Nighantu, Kushmanda is having Medhya effect<sup>2</sup>.

According to Acharya Charaka, assessment of Medha and Smrithi as Medham Grahanena and Smrithum Grahanena<sup>3</sup>, based upon this reference intelligent quotient is taken as the criteria for assessment with the help of Wechsler Intelligence scale for adults 3<sup>rd</sup> edition<sup>4</sup>.

### MATERIALS AND METHODS

To find out the Medhya effect of the drugs in the enhancement of IQ and to compare and assess relative merits of the drugs, 40 patients were selected and assigned into 2 groups of 20 each

1. Group A was selected for studying effect of Kashmarya syrup
2. Group B was selected for studying effect of Kushmanda syrup.

### Criteria for selection

40 apparent healthy individuals fulfilling the inclusion criteria were selected by conducting a survey from Alva's College Moodbidri, Karnataka, India irrespective of sex, religion and socio-economic status. Individuals were selected on the basis of simple random sampling technique.

### Inclusion criteria

1. Age group between 16 - 30 years.
2. Whose IQ scores ranges from 70 to 139

### Exclusion criteria

1. Individuals aged below 16 years and above 30 years.
2. Those suffering from any systemic disorders, which may turn out to be hinderance in the study.
3. Whose IQ score ranges below 70 and above 139.

### Study design

Assessment of IQ through Survey was done over a population size of 100. 40 individuals were selected for the clinical study according to inclusion & exclusion criteria and assigned into 2 groups. Willful assent and consent from the individuals was obtained for participating in the study after explaining about course of the study in detail. Complete physical examination, detailed evaluations of individuals and documentation of findings in a special proforma was done. Trial drugs were administrated. Follow up was done on every 15<sup>th</sup> day during treatment. IQ assessment was conducted after completion of the treatment (1 Month). Final review was completed at a gap of 1 month after stopping the treatment for follow up study. Data was analyzed statistically.

### Dose and duration

1. Duration of treatment– 1 month.
2. Dosage internally-  
Group A - 30ml of Kashmarya syrup, three times a day.  
Group B - 30ml of Kushmanda syrup, three times a day.

**Follow up of the study**

One month after stoppage of the treatment, the individuals were again assessed for follow up.

**Assessment Criteria**

Wechsler’s Adult’s Intelligence Scale has been used for the present study and Scores obtained in each item from the score table was considered as the individual criteria. The test contains verbal and performance scale which further contains 5 sub tests in each of them. The standard scoring method was followed.

**RESULTS**

**Group A (Kashmarya)** - The effect of Kashmarya on verbal, performance and overall IQ on 15<sup>th</sup> day, 30<sup>th</sup> day (after treatment) and after follow up are statistically significant. Thus the drug Kashmarya was statistically very much useful in improving the IQ.

**Group B (Kushmanda)** - The effect of Kushmanda on verbal, performance and overall IQ on 15<sup>th</sup> day, 30<sup>th</sup> day (after treatment) and after follow up are statistically significant. It may be seen that drug Kushmanda too has shown statistically significant improvement in individual’s IQ.

**Comparative Effect of Trial Drugs on Medhya**

There is no statistically significant difference in verbal, performance and overall IQ in between Group A and Group B. But clinically Group A is better than Group B.

Hence the drug Kashmarya can be considered as the better drug in the enhancement of Medhya.

- 1. Verbal IQ:** 6.45% improvement is seen in Group A and 5.80% in Group B.
- 2. Performance IQ:** 5.17% improvement in Group A and 5.05% in Group B.
- 3. Overall IQ:** 6.29% improvement is seen in Group A and 6.06% in Group B.

The percentage improvement in verbal, performance and overall IQ of Group A and Group B shows that the drug Kashmarya is having more effect than Kushmanda in the enhancement of IQ.

**Follow Up**

During the follow up period verbal, performance and overall IQ are statistically significant in groups and there was no statistical difference between the groups.

- 1. Verbal IQ:** 6.61% improvement is seen in Group A and 6.05% in Group B.
- 2. Performance IQ:** 4.94% improvement in Group A and 4.80% in Group B.
- 3. Overall IQ:** 6.29% improvement is seen in Group A and 5.90% in Group B.

The percentage improvement in verbal, performance and overall IQ of Group A and Group B after follow up shows that the drug Kashmarya is having more effect than Kushmanda in the enhancement of IQ.

**Table 1: Response of individuals to Verbal IQ in Group A**

Category	Score range	BT	15 <sup>th</sup> Day	AT	After Follow up
Dull	70-89	5	4	1	2
Average	90-109	10	9	12	11
Superior	110-124	5	6	7	7
Very superior	125-139	0	1	0	0

**Table 2: Statistical Results on Verbal IQ Score In Group A**

Day	Mean BT	Mean AT	% (Improve)	t Value	P Value
15 <sup>th</sup>	99.9	103.4	3.50	7.775	<0.0001
30 <sup>th</sup> (AT)	99.9	106.35	6.45	9.616	<0.0001
After Follow up	99.9	106.5	6.61	8.861	<0.0001

**Table 3: Response of individual to Performance IQ in Group A**

Category	Score range	BT	15 <sup>th</sup> day	AT	After follow up
Dull	70-89	3	1	1	1
Average	90-109	9	9	9	10
Superior	110-124	8	9	8	6
Very superior	125-139	0	1	2	3

**Table 4: Statistical Results on Performance IQ Score In Group A**

Day	Mean BT	Mean AT	% (Improve)	t Value	P Value
15 <sup>th</sup>	104.35	107.4	2.92	3.638	0.008
30 <sup>th</sup> (AT)	104.35	109.75	5.17	5.496	<0.0001
After Follow up	104.35	109.5	4.94	5.272	<0.0001

**Table 5: Response of individual to Verbal IQ in Group B**

Category	Score range	BT	15 <sup>th</sup> day	AT	After follow up
Dull	70-89	6	1	0	0
Average	90-109	9	14	13	15
Superior	110-124	5	4	5	3
Very superior	125-139	0	1	2	2

**Table 6: Statistical Results on Verbal IQ Score in Group B**

Day	Mean BT	Mean AT	% (Improve)	t Value	P Value
15 <sup>th</sup>	99.1	101.45	2.37	5.615	<0.0001
30 <sup>th</sup> (AT)	99.1	104.85	5.80	11.004	<0.0001
After Follow up	99.1	105.1	6.05	10.589	<0.0001

**Table 7: Response of individual to Performance IQ in Group B**

Category	Score range	BT	15 <sup>th</sup> day	AT	After follow up
Dull	70-89	0	0	0	0
Average	90-109	14	12	11	10
Superior	110-124	6	8	9	10
Very superior	125-139	0	0	0	0

**Table 8: Statistical Results on Performance IQ Score in Group B**

Day	Mean BT	Mean AT	% (Improve)	t Value	P Value
15 <sup>th</sup>	104	107.1	2.98	7.948	<0.0001
30 <sup>th</sup> (AT)	104	109.25	5.05	15.473	<0.0001
After Follow up	104	109	4.80	15.039	<0.0001

**Table 9: Response of individual in Group A on Overall IQ Score**

Category	Score range	BT	15 <sup>th</sup> day	AT	After follow up
Dull	70-89	4	3	2	2
Average	90-109	9	9	8	9
Superior	110-124	7	8	10	9
Very Superior	125-139	0	0	0	0

**Table 10: Statistical results on Overall IQ in Group A**

Day	Mean BT	Mean AT	% (Improve)	t Value	P Value
15 <sup>th</sup>	101.7	105.05	3.29	7.775	<0.0001
30 <sup>th</sup> (AT)	101.7	108.1	6.29	9.128	<0.0001
After Follow up	101.7	108.1	6.29	8.761	<0.0001

**Table 11: Response of individual in Group B on Overall IQ Score**

Category	Score range	BT	15 <sup>th</sup> day	AT	After follow up
Dull	70-89	3	0	0	0
Average	90-109	12	15	12	12
Superior	110-124	5	5	8	8
Very Superior	125-139	0	0	0	0

**Table 12: Statistical results on Overall IQ in Group B**

Day	Mean BT	Mean AT	% (Improve)	t Value	P Value
15 <sup>th</sup>	101.55	104.6	3	8.171	<0.0001
30 <sup>th</sup> (AT)	101.55	107.7	6.06	17.205	<0.0001
After Follow up	101.55	107.55	5.90	16.219	<0.0001

**Table 13: Comparison Of Means (T-Test) Of Two Groups On Verbal IQ (AT & After Follow Up)**

DAY	Mean Difference		% improvement		't' Value	'P' Value
	Group A	Group B	Group A	Group B		
15 <sup>th</sup>	3.5	2.35	3.50	2.37	1.8711	0.0691
30 <sup>th</sup> (AT)	6.45	5.75	6.45	5.80	0.8233	0.416
After Follow up	6.6	6	6.61	6.05	0.6411	0.5253

**Table 14: Comparison of Means (T-Test) Of Two Groups On Performance IQ (AT & After Follow Up)**

DAY	Mean Difference		% improvement		't' Value	'P' Value
	Group A	Group B	Group A	Group B		
15 <sup>th</sup>	3.05	3.1	2.92	2.98	0.0541	0.9572
AT	5.4	5.25	5.17	5.05	0.1443	0.8860
After Follow up	5.15	5	4.94	4.80	0.1454	0.8852

**Table 15: Comparison of Means (T-Test) Of Two Groups on Overall IQ Score (AT & After Follow Up)**

DAY	Mean Difference		% improvement		't' Value	'P' Value
	Group A	Group B	Group A	Group B		
15 <sup>th</sup>	3.35	3.05	3.29	3	0.5262	0.6018
AT	6.4	6.15	6.29	6.06	0.3177	0.7525
After Follow up	6.4	6	6.29	5.90	0.4885	0.6280

## **DISCUSSION**

Considering the Rasa Panchaka of the drugs it may be summed up that both Kashmarya and Kushmanda by its Madhura Rasa and Seeta Veerya increases the retention power by maintaining the balance of Avalambaka Kapha and Tarpaka Kapha. The Guru & Snigdha Gunas of the drugs may enhance the Satva Bhava which positively influences the Medha.

### **Clinical response and treatment**

Volunteers were assessed before treatment, 15<sup>th</sup> day, 30<sup>th</sup> day and a follow up of 1 month. The effects of treatments were assessed statistically on the basis of Wechsler's Adult's Intelligence Scale, before and after treatment. Individuals in both the groups showed statistically significant response in the enhancement of Medha. No adverse effects of the drugs were observed during the trial

in both groups and can be used for further clinical practices. Based on observations from the study it may be concluded that Kashmarya and Kushmanda have very good action in the enhancement of Medha.

## **REFERENCES**

1. Sushruta, Sushruta samhita.Sutra Sthana. Dalhana nibandha sangraha Sanskrit commentary, Jadavaji Trikamaji Acharya editor 46/185. Page 228
2. P. V.Sharma, Priya Nighantu. Varanasi.Chowkambha Surbharati Prakashan 2004 Page 70
3. Acharya Agnivesha, Charaka Samhitha (with commentary of Chakrapanidutta) Vimana Sthana chapt.4 Chowkhamba Krishnadas Academy, Varanasi.2006.
4. K.V.Krishna Das,Text Book of Medicine. Jaypee Brothers Medical Publishers (P) LTD.5<sup>th</sup> edition 2008 Pn.1403.

Source of support: Nil, Conflict of interest: None Declared