Dr. D. N. Pande - VI

SANGYAHARAN SHODH

February 2000 Volume 3, Number 1

संज्ञाहरण शोध

An Official Journal of

BHARATIYA SANGYAHARAK ASSOCIATION

(Association of Anaesthetists of Indian Medicine)

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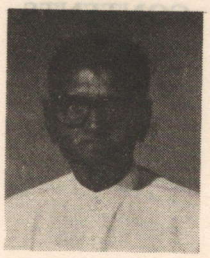

प्रिय डा. पाण्डेय,

'संज्ञाहरण शोध' के प्रकाशित अंको को देखने से यह प्रतीत हुआ कि भारतीय संज्ञाहरक एसोसियेशन बडे उत्साह एंव विश्वास के साथ आगे बढ रहा है ।

संज्ञाहरण आयुर्वेदीय शल्यतन्त्र के क्षेत्र में एक समस्या रही है । मेरे विचार में, यह एक बड़ी बाधा रही जिसके कारण शल्यतन्त्र का यथेष्ट विकास न हो सका ।

आयुर्वेद एक प्रगतिशील विज्ञान है, समय समय पर आवश्यकतानुसार इसने नवीन अंगो का विकास किया जिससे प्राचीन अष्टांग आयुर्वेद अब षोडशांग हो गया । इसी प्रकार अब समय आ गया है कि आयुर्वेद में संज्ञाहरण पद्दति का भी विकास हो जिससे शल्यकर्म सुगम हो सके । असंख्य आयुर्वेदीय वनस्पतियों में अपार संभावनायें अन्तनिहित है जिन्हें अनुसन्धान के द्वारा प्रकाश में लाना आवश्यक है । आशा है, एसोसियेशन द्वारा यह कार्य पूरा होगा । मेरी हार्दिक शुभकामना है कि आप लोग अपने उद्देश्य में सफल हो और आयुर्वेद को समृद्ध बनावें।

भवदीय
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डा. देवेन्द्र नाथ पाण्डेय
मुख्य संपादक, संज्ञाहरण शोध

SANGYAHARAN SHODH

February 2000 **Volume 3, Number 1**

CONTENTS

Minutes of the Second National Conference of Bharatiya Sangyaharak Association held at Puri (Orissa) on 21st and 22nd, March, 1998

In response to the resolution made by the Executive Body meeting held on 26.7.97 at Varanasi, the Association of Anaesthetists of Indian Medicine, organised the Second National Conference at Puri (Orissa) on 21st and 22nd March, 1998. Venue of Conference was "PANTHA NIVAS" on Sea Beach, Puri.

Delegates from various parts of the country like Pune, Varanasi, Udupi (Karnataka), Delhi, Calcutta, Nepal etc. and from various parts of Orissa i.e., Puri, Bhubaneswar, Bolangir, Baripada, Berhampur, Balasore, Sambalpur attended the seminar.

The chief guest of Inaugural session on dated 21.3.98 was Sri Bighnaraj Patel, I.A.S. (Retd. Commissioner and Member of Board of Revenue), Sri Narayan Prasad Das, Director of Indian Medicines and Homeopathy, Orissa, Raja Sri R.N. Bhanja Deo, President, Orissa Ayurvedic Foundation, Dr. M.N. Choudhary, President, Bhartiya Sangyaharak Association, Sri Niten Chandra, I.A.S., Collector of Puri District, Dr. B.K. Jayasingh, Principal Gopabandhu Ayurveda College, Puri and Dr. S.B. Pandey, Founder President, A.A.I.M. attended as guests of honour and speaker. The session was chaired by Dr. N.P. Das, President, Organising Committee. The discussion was very much educative and explorative for the Science. There was high encouragement from all corners and sense of appreciation for development of pain and palliative care. In this important session mementos were offered to various Scholars and scientists devoted to the Science. Besides these Dr. S.B. Pandey was awarded with the title of **"Nischetak Bhaskar"** and a silver memento was presented to him for his sacrifice in developing the science per excellency. Dr. M.N. Choudhary (Pune) was honoured by **"Ashwinau Award"** for his sacrifice in development of Sangyaharan in the country. **"Dr. Govind Bhaskar Ghanekar Memorial Guest Lecture"** was delivered by Dr. N.P. Das, Puri. In the last but not the least the inaugural session ended with vote of thanks by Dr. B.C. Senapati (Puri), Organising Secretary.

Three scientific sessions could be organised on the same day, Prof. P.K. Gupta, Ex-Head, Department of Anaesthesiology, Calcutta Medical College delivered key note lecture on History of Anaesthesia, Dr. K.K. Pandey, Banaras Hindu University, Varanasi, Dr. D.N. Pande, Banaras Hindu University, Varanasi, Dr. P.R. Mishra, Banaras Hindu University, Varanasi, Dr. S. Bhat, Udupi, Dr. Deba Dash, Puri, Dr. G.S. Shah, Banaras Hindu University, Varanasi, Dr. Shivji Gupta, Banaras Hindu University, Varanasi, Dr. B.C. Senapati, Puri, Dr. Raj Bhadur, Banaras Hindu University, Varanasi, Dr. Anukul Kar, Puri, Dr. Banka Bihari Das, Puri, Dr. B.N. Mohapatra, Puri took part in scientific session and demonstrated many lucrative thoughts and facts.

On the next day i.e., 22.3.98 a scientific session and valedictory function was held. In the valedictory function a resolution was made to enrich the Ayurvedic system with integration of Modern technology and medicines.

The last function was memorable for all the delegates on the presence of Prof. L.M. Singh from Nepal, Dr. S.B. Pandey and Dr. D.N. Pande who have added advanced dimensions towards the cause and remote benefits of the association.

Dr. N.P. Das, President, Organising Committee represented Orissa members and Dr. B.C. Senapati, Organising Secretary offered their indebtedness to the Central Office and delegates from all over the country.

(Dr. N.P. Das)
President, Organising Committee

(Dr. B.C. Senapati)
Organising Secretary

Role of Kuti-Sweda in the Management of *Sutika-Paricharya (Puerpurium)*

Mukta Sinha* and Mamtha K.B.**

ABSTRACT

Healthy mother and child have become the moto of today's RCH programme which is actually the need of the nation. It is only the healthy women who can deliver the healthy child. It has been observed that after delivery the mother has got several problems like back-ache, after pain, bleeding P/V, etc. for which modern medicine provide oral therapy but Panch-Karma therapy of Ayurveda suggests certain procedural measures for sutika paricharya, one of them is whole body oleation and other is *sweda kriya*. Therefore to evaluate the effect of the above said therapy, a clinical trial was done.

The trial was performed in two groups, 25 patients in each. The first group (A) has received only the modern supportive treatment whereas the patient of second group (B) has received *Panchkola churna* orally along with *Dashmoolaristha* and *kuti-sweda* with decoction of *Dashmoola*. When the result was compared with each other the Ayurvedic therapy has shown very promising results.

Key words:

Sutika, Sutika paricharya, Dashmoola kwath, Kuti-sweda, Abhyanga (snehan), Panch-karma.

Introduction

स्त्री हि मूलपत्यानां स्त्री हि रक्षति रक्षिता
सर्वाश्रमाणों प्रथमं गृहस्थत्वमूनिन्दितम्

A.S. Sh. 2/64

"Women is the root of progeny. In other words, she bears entire responsibility and pain from conception to maturity of pregnancy and its delivery, with care and nutrition of the infant. If women carefully attended, keeps the normal, and healthy generation. Therefore in all the four ashramas of life, Grihastha Ashram is considered to be the best one[1] furthermore it is said "Mother is a lady at whose breast humanity is nourished and on whose lap civilization are cradled" so without the lap of mother a child cannot grow proper to serve the nation. Sutika can remain happy and free from diseases only by giving her full and proper nourishing care. Keeping this motto in view we have thought to have a clinical trial to evaluate the effect of Pancha-Karma therapy and orally Pancha-Kola churna.

Material and method

Sixty patients have been registered for clinical trial out of which only 50cases were return in all the follow-ups. Therefore they have been grouped into two, 25 patients in each, from the following criteria. The cases were selected by (i) exclusion method (ii) Parameters of clinical study

* Senior Lecturer, Department of Prasuti Tantra, Institute of Medical Sciences, Banaras Hindu University.

** Medical Officer, State Ayurvedic Services, Andhara Pradesh.

(a) General - Blood pressure (B.P.), Pulse Rate, Temperature
(b) Associated S/s - Pain in abdomen, Backache, Bodyache, Weakness, Thirst, Constipation, Giddiness, Perineal Pain etc.
(c) Specific : Involution of the uterus, lochial discharges with colour and amount.

Investigations

Blood

Hb gm%, Total Leucocyte count/cumm

Urine

a. Routine - albumin, sugar
b. Microscopic - puscells

A. Criteria for selection of drugs

(1) Authentic references
(2) Use as folk medicine since long
(3) Easy availability of drugs
(4) Economic
(5) Easy to administer

On the basis of above criteria 'Pancha Kola Churna' for giving orally, Bala Taila for Abhyang and Dashmoola decoction for Kuti- sweda was selected, and a standard Modern drug inj. Methengin with iron, calcium, anti spasmodic drugs.

B. Doses

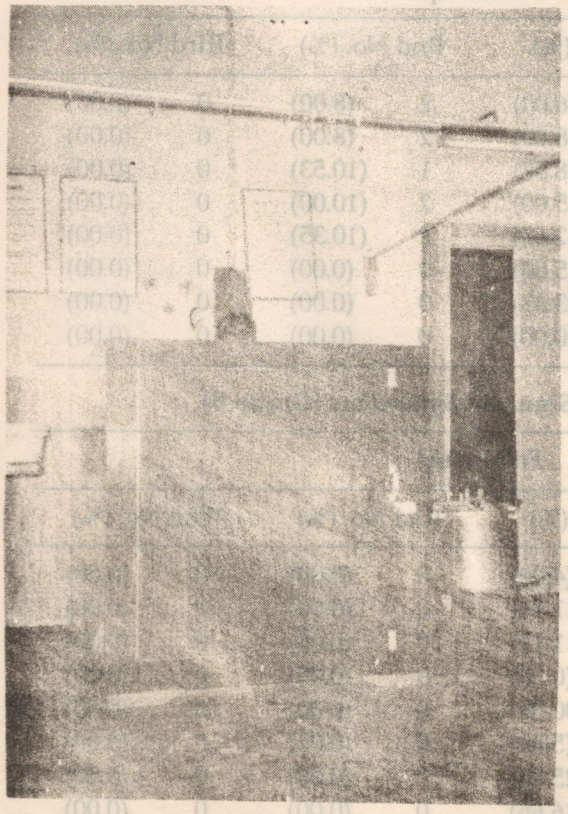
Groups	Drug	Dose	Route of administration	Duration	Follow up in days I, II, III
A.	Inj. Methylergometrine	0.2 mg/ml (1 amp.)	Im.	Stat	7 14 45
	Tab. Methylergometrine	0.125 mg/TDS	Orally	5 days	
	Cap Caphalexin	500 mg 1 BDS	Orally	5 days	
	Tab. Ibuprofen + paracetamol	400 mg 325 mg 1 TDS	Orally	5 days	
	Tab. Mefanamic acid + dicyclominol	250 mg l SOS 10 mg	Orally		
	Povidone	5% twice	topical	7-10 days	
B.	Panchakola churna	3 gm TDS	Orally	7 days	7 18 45
	Dashmoolarista	20 ml BID	Orally	15 days	
	Bala-Tail Abhyanga (Whole body)		External application	3 days	
	Kuti swed with Dashamool kashay		Whole body	3 days	
Supportive therapy		Ferrous Fumerate - 300 mg/day Calcium - 500 mg/day Protein - 15 gm/day			

Grouping of the cases

Two groups of 25 cases in each have been made Group A received Modern Medicament while Group B has received Ayurvedic Therapy.

Criteria of Scoring

Scoring	Lochial discharges (colour)	Lochal discharges (amount)	Pain in abdomen
0	Nil	No pad	• No need of analgesics or antispasmodics
1	Red	One pad/day	• Need of analgesics or antispasmodics once in 24 hours
2	Pink	Two pads/day	• Need of analgesics, antispasmodics more than once in a day
3	Brown	Three pads/day	
4	Pale	Four pads/day	
5	White	Five pads/day	
6	–	Six pads/day	



Special techniques used

Abhyanga with sneha dravya

Abhyanga was done after delivery as indicated by both *Vagbhattas*. It was done after the full settlement of the patient after delivery i.e., from labour exertion. Pulse, B.P., temperature and general condition was properly assessed before the therapy (Fig. 1).

Kuti sweda

Acharya Kashyap, Sushruta, Harit have clearly advocated *swedan for sutika* after *sneha abhyanga*. Therefore for swedan we have chosen the kuti sweda for the patients (Fig.2).

Observation & result

Out of total number of 50 cases divided in to two groups, Group A and B, 25 cases in each group. As discussed in material method group A has received methyle ergometrine and taken as control. While group B has received *Panch kola Churna* orally, *Abhyang of Bala tail* and *Kutisweda of Dashmula* decoction. Patient was investigated for routine urine and blood examination, but almost all the cases have normal values. Therefore it is not advisable to give it here in tabular form.

The observations are given here under tabular form :

Table 1A. Showing improvement in Associated Sign and Symptoms Group A (n=25).

Sign and Symptoms	Follow-up							
	Initial No. (%)		Ist No. (%)		IInd No. (%)		IIIrd No. (%)	
Pain in abdomen	25	(100.00)	9	(36.00)	2	(8.00)	0	(0.00)
Backache	25	(100.00)	12	(48.00)	2	(8.00)	0	(0.00)
Weakness	21	(84.00)	6	(28.57)	1	(10.53)	0	(0.00)
Perineal Pain	20	(80.00)	7	(35.00)	2	(10.00)	0	(0.00)
Bodyache	19	(76.00)	10	(52.63)	2	(10.35)	0	(0.00)
Thirst	16	(64.00)	4	(25.00)	0	(0.00)	0	(0.00)
Giddiness	6	(24.00)	2	(33.33)	0	(0.00)	0	(0.00)
Constipation	5	(20.00)	2	(40.00)	0	(0.00)	0	(0.00)

Table 1B. Showing improvement in associated Sign and Symptoms (Group B).

Sign and Symptoms	Follow-up							
	Initial No. (%)		Ist No. (%)		IInd No. (%)		IIIrd No. (%)	
Pain in abdomen	25	(100.00)	1	(4.00)	0	(0.00)	0	(0.00)
Backache	24	(96.00)	2	(11.11)	0	(0.00)	0	(0.00)
Weakness	18	(72.00)	2	(11.11)	0	(0.00)	0	(0.00)
Perineal Pain	21	(84.00)	0	(0.00)	0	(0.00)	0	(0.00)
Bodyache	23	(92.00)	0	(00.00)	0	(0.00)	0	(0.00)
Thirst	17	(68.00)	1	(5.88)	0	(0.00)	0	(0.00)
Giddiness	4	(16.00)	1	(25.00)	0	(0.00)	0	(0.00)
Constipation	6	(24.00)	1	(16.66)	0	(0.00)	0	(0.00)

Amongst total 9 symptoms which patients had in study, majority of the cases were having pain abdomen and Backache 200%, Weakness 84%, perineal pain 80%, bodyache 76%, thirst 64%, giddiness 24%, constipation 20%, and breast engorgement 16%. All the symptoms subsequently in followups reduced and become nil in third followup.

Maximum number of cases i.e., pain in abdomen 100%, backache 96%, bodyache 92%, Perineal pain 84%, were noted initially as chief symptoms but all the symptoms in most of the cases subsided in first followup. Whereas 100% improvement was observed during IInd and IIIrd followups.

Table 2A. Showing improvement in temperature (Group A; n=25).

Temperature in °F	Follow-up							
	Initial No. (%)		Ist No. (%)		IInd No. (%)		IIIrd No. (%)	
97.5-98.5	11	(44.00)	13	(52.00)	18	(72.00)	25	(100.00)
98.5-99.5	11	(40.00)	11	(44.00)	7	(28.00)	0	(0.00)
≥ 99.5	4	(16.00)	1	(4.00)	0	(0.00)	0	(0.00)
Mean ± SD	98.80	± 0.59	98.85	± 0.71	98.21	± 0.48	98.12	± 0.27

Temperature of each patients initially and during followups were recorded during first followup 52% cases there temperature within the normal range. Only 40% cases were remained in between 98.5 - 99.5 F. On second followup most of the cases and attained their normal range of temperature 72% and 28% cases had rise of temperature between 98.5 - 99.5. While in the third followup all the patients had attained their normal their normal range of temperature.

Table 2B. Showing improvement in temperature (Group B; n=25).

Temperature in °F	Follow-up							
	Initial No. (%)		Ist No. (%)		IInd No. (%)		IIIrd No. (%)	
97.5-98.5	10	(40.00)	16	(64.00)	25	(100.00)	25	(100.00)
98.5-99.5	11	(44.00)	5	(20.00)	0	(0.00)	0	(0.00)
≥ 99.5	4	(16.00)	4	(16.00)	0	(0.00)	0	(0.00)
Mean ± SD	98.65	± 0.63	98.24	± 0.37	98.20	± 0.22	98.31	± 0.087

Amongst all the cases of group B44% at mild and 16% cases had moderate temperature initially but all respondent well in IInd followup and cases become afebrile with no recurrence.

36% cases had their size of uterus after one week 2 to 3" above the symphysis pubis, and 36% had 3 to 4" size of uterus above symphysis pubis. After second followup most of the cases were observed in between 1 to 2" size of the uterus above symphysis pubis (64%). Whereas in third followup only 8% patients had palpable uterus 1 to 2" above the symphysis pubis while 12% patients had their uterus size in between 0 to 1".

Table 3A. Showing improvement of uterus in size (in inches) above symphysis pubis (Group A; n=25).

Involution of uterus (in inches)	Follow-up							
	Initial No. (%)		Ist No. (%)		IInd No. (%)		IIIrd No. (%)	
0"	0	(0.00)	0	(0.00)	0	(0.00)	20	(80.00)
0-1"	0	(0.00)	0	(0.00)	0	(0.00)	3	(12.00)
1-2"	0	(0.00)	0	(0.00)	16	(64.00)	2	(8.00)
2-3"	0	(0.00)	9	(36.00)	4	(16.00)	0	(0.00)
3-4"	0	(0.00)	9	(36.00)	5	(20.00)	0	(0.00)
4-5"	13	(52.00)	7	(28.00)	0	(0.00)	0	(0.00)
5-6"	12	(48.00)	0	(0.00)	0	(0.00)	0	(0.00)
≥ 6"	0	(0.00)	0	(0.00)	0	(0.00)	0	(0.00)
Mean ± SD	4.98	± 0.51	4.38	± 0.86	2.06	± 0.82	0.18	± 0.43

Table 3B. Showing improvement of uterus in size (in inches) above symphysis pubis (Group B; n=25).

Involution of uterus (in inches)	Follow-up							
	Initial No. (%)		Ist No. (%)		IInd No. (%)		IIIrd No. (%)	
0"	0	(0.00)	3	(12.00)	18	(72.00)	25	(100.00)
0-1"	0	(0.00)	5	(20.00)	5	(20.00)	0	(0.00)
1-2"	0	(0.00)	4	(16.00)	1	(4.00)	0	(0.00)
2-3"	0	(0.00)	8	(32.00)	1	(4.00)	0	(0.00)
3-4"	0	(0.00)	4	(16.00)	0	(0.00)	0	(0.00)
4-5"	9	(36.00)	1	(4.00)	0	(0.00)	0	(0.00)
5-6"	13	(52.00)	0	(0.00)	0	(0.00)	0	(0.00)
≥ 6"	3	(12.00)	0	(0.00)	0	(0.00)	0	(0.00)
Mean ± SD	5.26	± 0.66	1.88	± 1.31	0.26	± 0.58	0.00	± 0.00

Uterine size was observed between 5 to 6" in almost all the cases initially with maximum 52% cases, and in between 4 to 5" only 36% cases were observed. The involution of uterus was gradually observed in the followups which has become all most normal at IIIrd followup 100%.

Amount of lochial discharge was found maximum initially in 52% of the cases while in Ist followup, it has become 48%, 36% and 16%. While in second followup 56% of cases were used only one pad per day only and 44% of cases had used two sanitary pads per day.

Whereas during IIIrd followup most of the cases had not used any sanitary pad (68%) only 33% cases had used only sanitary pad perday.

Table 4A. Showing improvement of lochial discharges in amount (group A; n=25).

Lochial discharges (amount in pads)	Follow-up							
	Initial No. (%)		Ist No. (%)		IInd No. (%)		IIIrd No. (%)	
0	0	(0.00)	0	(0.00)	0	(0.00)	17	(68.00)
1	0	(0.00)	0	(0.00)	14	(56.00)	8	(32.00)
2	0	(0.00)	9	(36.00)	11	(44.00)	0	(0.00)
3	0	(0.00)	12	(48.00)	0	(0.00)	0	(0.00)
4	10	(40.00)	0	(0.00)	0	(0.00)	0	(0.00)
5	13	(52.00)	4	(16.00)	0	(0.00)	0	(0.00)
6	2	(8.00)	0	(0.00)	0	(0.00)	0	(0.00)
Mean ± SD	4.68 ± 0.63		2.96 ± 1.01		1.44 ± 0.51		0.32 ± 0.48	

Table 4B. Showing improvement of lochial discharges in amount (group B; n=25).

Lochial discharges (amount in pads)	Follow-up							
	Initial No. (%)		Ist No. (%)		IInd No. (%)		IIIrd No. (%)	
0	0	(0.00)	7	(28.00)	17	(68.00)	25	(100.00)
1	0	(0.00)	12	(48.00)	8	(32.00)	0	(0.00)
2	0	(0.00)	6	(24.00)	0	(0.00)	0	(0.00)
3	13	(52.00)	0	(0.00)	0	(0.00)	0	(0.00)
4	13	(52.00)	0	(0.00)	0	(0.00)	0	(0.00)
5	12	(48.00)	0	(0.00)	0	(0.00)	0	(0.00)
6	0	(0.00)	0	(0.00)	0	(0.00)	0	(0.00)
Mean ± SD	4.48 ± 0.51		0.96 ± 0.73		0.32 ± 0.48		0.00 ± 0.00	

Table 5A. Showing improvement in colour of lochial discharges (group A; n=25).

Lochial discharges (Colour)	Follow-up							
	Initial No. (%)		Ist No. (%)		IInd No. (%)		IIIrd No. (%)	
Red (1)	25	(100.00)	6	(24.00)	0	(0.00)	0	(0.00)
Pink (2)	0	(0.00)	9	(36.00)	12	(48.00)	0	(0.00)
Brown (3)	0	(0.00)	10	(40.00)	3	(12.00)	0	(0.00)
Pale (4)	0	(0.00)	0	(0.00)	7	(28.00)	0	(0.00)
White (5)	0	(0.00)	0	(0.00)	2	(8.00)	5	(20.00)
Nil (0)	0	(0.00)	0	(0.00)	1	(4.00)	20	(80.00)

Moderate to severe degree of lochial discharges were observed in all the patients (100%) initially. As followup was carried out percentage of cases of lochial discharges was decreased rapidly and all had become normal in third followup.

From the perusal of the above table it has been observed that red colour was found in 100% of cases initially. During Ist followup 40% of the cases had shown brown colour and 36% pink, only 24% cases had red colour. During second followup pink colour was observed in 48% of cases, 28% had pale colour and only 12% cases had brown colour. During IIIrd followup 80% of the cases had no colour only 20% cases has been found white colour of lochial discharge.

Table 5B. Showing improvement in colour of lochial discharges (group B; n=25).

Lochial discharges (Colour)	Follow-up							
	Initial No. (%)		Ist No. (%)		IInd No. (%)		IIIrd No. (%)	
Red (1)	25	(100.00)	3	(12.00)	0	(0.00)	0	(0.00)
Pink (2)	0	(0.00)	14	(56.00)	2	(8.00)	0	(0.00)
Brown (3)	0	(0.00)	6	(24.00)	1	(4.00)	0	(0.00)
Pale (4)	0	(0.00)	2	(8.00)	7	(28.00)	0	(0.00)
White (5)	0	(0.00)	0	(0.00)	7	(28.00)	0	(0.00)
Nil (0)	0	(0.00)	0	(0.00)	8	(32.00)	25	(100.00)

It was observed, like previous observation 100% cases had red colour of lochial, in followup study gradually the colour had become nil. In Ist followup 56% had pink, 24% has brown and 8% had only pale colour of lochial discharge. In IInd followup 32% cases had shown nil in colour, 28% cases had white and 28% had pale colour. While during IIIrd followup all the patients had nil in colour of lochial discharges.

Intergroup Study of Followups

Table 6. Showing improvement in sign and symptoms in between the groups in all followups along with statistical comparison (n=25).

Sign and Symptoms	Groups				χ^2 'p'	
	A No. (%)		B No. (%)			
	First Followup					
Pain in abdomen	9	(36.00)	1	(4.00)	3.09	< 0.01
Backache	12	(48.00)	2	(8.00)	3.52	< 0.001
Weakness	6	(28.57)	2	(11.11)	1.46	N.S.
Perineal pain	7	(35.00)	0	(0.00)	3.28	< 0.01
Bodyache	10	(52.63)	0	(0.00)	4.63	< 0.001
Thirst	4	(25.00)	1	(5.88)	1.55	N.S.
Giddiness	2	(33.00)	1	(25.00)	0.28	N.S.
Constipation	2	(40.00)	1	(16.66)	0.86	N.S.

Sign and Symptoms	Groups		χ^2 'p'
	A No. (%)	B No. (%)	
Second Followup			
Pain in abdomen	2 (8.00)	0 (0.00)	1.47 N.S.
Backache	2 (8.00)	0 (0.00)	1.47 N.S.
Weakness	1 (4.76)	0 (0.00)	1.05 N.S.
Perineal pain	2 (10.00)	0 (0.00)	1.49 N.S.
Bodyache	2 (10.53)	0 (0.00)	1.53 N.S.
Thirst	0 (0.00)	0 (0.00)	0 N.S.
Giddiness	0 (0.00)	0 (0.00)	0 N.S.
Constipation	1 (20.00)	0 (0.00)	1.12 N.S.
Third Followup			
Pain in abdomen	0 (0.00)	0 (0.00)	0 N.S.
Backache	0 (0.00)	0 (0.00)	0 N.S.
Weakness	0 (0.00)	0 (0.00)	0 N.S.
Perineal pain	0 (0.00)	0 (0.00)	0 N.S.
Bodyache	0 (0.00)	0 (0.00)	0 N.S.
Thirst	0 (0.00)	0 (0.00)	0 N.S.
Giddiness	0 (0.00)	0 (0.00)	0 N.S.
Constipation	0 (0.00)	0 (0.00)	0 N.S.

From the perusal of the above table improvement in pain in abdomen and back-ache when compared in between Group A and Group B, has shown statistically marked significant result i.e., $p<0.01$ and $p<0.001$. Perineal pain and body-ache of Group B has shown statistically significant improvement $p<0.01$ and $p<0.001$. However, other S/S though the improvement in Group B was marked but statistically it was not found significant.

As regard the second follow-up all the symptoms have been found to be improved in Group B (symptomless). Whereas some of the symptoms have observed to be persistent in Group A but in third follow-up all the S/S have been observed improved in Group A also.

Table 7. Showing improvement in Temperature in between the groups in all followups along with statistical comparison (n=25).

Temperature in ^oF	Groups		χ^2 'p'
	A No. (%)	B No. (%)	
First Followup			
97.5-98.5	13 (52.00)	16 (64.00)	
98.5-99.5	11 (44.00)	5 (20.00)	
≥ 99.5	1 (4.00)	4 (16.11)	
Mean ± SD	98.85 ± 0.71	98.24 ± 0.37	3.78 < 0.001

Temperature in °F	Groups		χ^2 'p'
	A No. (%)	B No. (%)	
	Second Followup		
97.5-98.5	18 (72.00)	25 (100.00)	
98.5-99.5	7 (28.00)	0 (0.00)	
≥ 99.5	0 (0.00)	0 (0.00)	
Mean ± SD	98.21 ± 0.48	98.20 ± 0.22	0.09 N.S.
	Third Followup		
97.5-98.5	25 (100.00)	25 (100.00)	
98.5-99.5	0 (0.00)	0 (0.00)	
≥ 99.5	0 (0.00)	0 (0.00)	
Mean ± SD	98.12 ± 0.27	98.31 ± 0.087	3.34 <0.01

Above table clearly indicates that improvement in the degree of temperature in Group B observed highly significant in Group B during first follow-up $p<0.001$ However, it was not significant in second follow-up. But in the third follow-up the improvement in the degree of temperature was again found significant in Group B when compared with that of group A ($p<0.01$).

Table 8. Showing improvement in involution of uterus in between the groups in all followups along with statistical comparison (n=25).

Height of the uterus in inches (above pubic symphysis)	Groups		χ^2 'p'
	A No. (%)	B No. (%)	
	First Followup		
0"	0 (0.00)	3 (12.00)	1.85 N.S.
0-1"	0 (0.00)	5 (20.00)	2.50 < 0.05
1-2"	0 (0.00)	4 (16.00)	2.18 < 0.05
2-3"	0 (0.00)	8 (32.00)	3.43 < 0.001
3-4"	9 (36.00)	4 (16.00)	1.66 N.S.
4-5"	9 (36.00)	1 (4.00)	3.09 <0.01
5-6"	7 (28.00)	0 (0.00)	3.12 <0.01
≥ 6"	0 (0.00)	0 (0.00)	0 N.S.
Mean ± SD	4.38 ± 0.86	1.88 ± 1.31	7.96 ± 0.001

Height of the uterus in inches (above pubic symphysis)	Groups A No. (%)	B No. (%)	χ^2 'p'
Second Followup			
0"	0 (0.00)	18 (72.00)	8.02 < 0.001
0-1"	0 (0.00)	5 (20.00)	2.50 < 0.05
1-2"	16 (64.00)	1 (4.00)	5.79 < 0.001
2-3"	4 (16.00)	1 (4.00	1.44 N.S.
3-4"	5 (20.00)	0 (0.00)	2.50 < 0.05
4-5"	0 (0.00)	0 (0.00)	0 N.S.
5-6"	0 (0.00)	0 (0.00)	0 N.S.
≥ 6"	0 (0.00)	0 (0.00)	0 N.S.
Mean ± SD	2.06 ± 0.82	0.26 ± 0.58	9.96 < 0.001
Third Followup			
0"	20 (80.00)	25 (100.00)	2.50 < 0.05
0-1"	3 (12.00)	0 (0.00)	1.85 N.S.
1-2"	2 (8.00)	0 (0.00)	1.47 N.S.
2-3"	0 (0.00)	0 (0.00)	0 N.S.
3-4"	0 (0.00)	0 (0.00)	0 N.S.
4-5"	0 (0.00)	0 (0.00)	0 N.S.
5-6"	0 (0.00)	0 (0.00)	0 N.S.
≥ 6"	0 (0.00)	0 (0.00)	0 N.S.
Mean ± SD	0.18 ± 0.43	0.00 ± 0.00	2.09 < 0.05

This table reveals that involution of the uterus above pubic symphysis was observed statistically marked decreased in Group B in the first and second follow-ups with that of Group A ($p < 0.001$) while in third follow up it was comparatively less significant than that of Group A (p , 0.05)

When lochial discharge in amount of Group B compared with that of Group A statistically marked significant improvement in Group B was observed at the level of all the three follow-ups, $p < 0.001$, < 0.001 and < 0.001 respectively.

The lochial discharges in colour was not found significant at the level of first follow-up between both the groups. However, improvement in colour was marked in Group B as compared to Group A in the second follow-up; $p < 0.01$, while in the third follow-up also Group B was found statistically significant than that of Group A, $p < 0.05$.

Table 9. Showing improvement in lochial discharge (amount) in between the groups in all followups along with statistical comparison (n=25).

Lochial discharges in amount (pads used per day)	Groups		χ^2, 'p'
	A No. (%)	B No. (%)	
	First Followup		
0	0 (0.00)	7 (28.00)	3.12 < 0.01
1	0 (0.00)	12 (48.00)	1.85 N.S.
2	9 (36.00)	6 (24.00)	0.93 N.S.
3	12 (48.00)	0 (0.00)	4.81 < 0.001
4	0 (0.00)	0 (0.00)	0 N.S.
5	4 (16.00)	0 (0.00)	2.18 < 0.05
6	0 (0.00)	0 (0.00)	0 N.S.
Mean ± SD	2.96 ± 1.01	0.96 ± 0.73	8.04 < 0.001
	Second Followup		
0	0 (0.00)	17 (68.00)	7.29 < 0.001
1	14 (56.00)	8 (32.00)	1.76 N.S.
2	11 (44.00)	0 (0.00)	4.43 < 0.001
3	0 (0.00)	0 (0.00)	0 N.S.
4	0 (0.00)	0 (0.00)	0 N.S.
5	0 (0.00)	0 (0.00)	0 N.S.
6	0 (0.00)	0 (0.00)	0 N.S.
Mean ± SD	1.44 ± 0.51	0.32 ± 0.48	7.92 < 0.001
	Third Followup		
0	17 (68.00)	25 (100.00)	3.43 < 0.001
1	8 (32.00)	0 (0.00)	3.43 < 0.001
2	0 (0.00)	0 (0.00)	0 N.S.
3	0 (0.00)	0 (0.00)	0 N.S.
4	0 (0.00)	0 (0.00)	0 N.S.
5	4 (0.00)	0 (0.00)	2.18 <0.05
6	0 (0.00)	0 (0.00)	0 N.S.
Mean ± SD	0.32 ± 0.48	0.00 ± 0.00	3.34 <0.01

Table 10. Showing improvement in lochial discharge (Colour) in between the groups in all followups along with statistical comparision (n=25).

Lochial discharges in colour	Groups				χ^2 'p'	
	A No. (%)		B No. (%)			
First Followup						
Red (1)	6	(24.00)	3	(12.00)	1.12	N.S.
Pink (2)	9	(36.00)	14	(56.00)	1.45	N.S.
Brown (3)	10	(40.00)	6	(24.00)	1.23	N.S.
Pale (4)	0	(0.00)	2	(8.00)	1.47	N.S.
White (5)	0	(0.00)	0	(0.00)	0	N.S.
Nil (0)	0	(0.00)	0	(0.00)	0	N.S.
Second Followup						
Red (1)	0	(0.00)	0	(0.00)	0	N.S.
Pink (2)	12	(48.00)	2	(8.00)	3.52	< 0.001
Brown (3)	3	(12.00)	1	(4.00)	1.05	N.S.
Pale (4)	7	(28.00)	7	(28.00)	0	N.S.
White (5)	2	(8.00)	7	(28.00)	1.91	N.S.
Nil (0)	1	(4.00)	8	(32.00)	2.77	< 0.01
Third Followup						
Red (1)	0	(0.00)	0	(0.00)	0	N.S.
Pink (2)	0	(0.00)	0	(0.00)	0	N.S.
Brown (3)	0	(0.00)	0	(0.00)	0	N.S.
Pale (4)	0	(0.00)	0	(0.00)	0	N.S.
White (5)	5	(20.00)	0	(0.00)	2.50	< 0.05
Nil (0)	20	(80.00)	25	(100.00)	2.50	< 0.05

Result

On the basis of perusal of above observations of the groups i.e., A and B and followups i.e., Ist, IInd and IIIrd along with the statistical comparison of followups in between the groups the criteria of assessment of result has been discussed as followed :

Excellent : All the sign and symptoms disappeared and 100% improvement in other parameters up to IIIrd followups.

Moderate : All the sign and symptoms disappeared and 80% improvement in other parameters up to IIIrd followups.

Mild : All sign and symptoms disappeared and 60% improvement in other parameters upto IIIrd followups.

Table 11. Showing Results of each group in percentage.

Groups	Excellent No. (%)	Moderate No. (%)	Mild No. (%)
A	17 (68.00)	3 (12.00)	5 (20.00)
B	25 (100.00)	Nil (100.00)	Nil (100.00)

On the basis of perusal of the improvement of patients of Group A and B in each parameter it is observed that 68% and 100% cases in Group A and B respectively have shown excellent result, while 12% and nil in Group A and B respectively were observed in the moderate categories. Only 20% cases were found to be in mild category in Group A as shown in the above table.

Discussion

The word 'Sutika' (puerpureal women) is derived from the root 'Su' and ata suffix of 'Sung prani Prasava' "Prani Garbha Vimochane" means be getting, projecting beginning from producing or delivery.

सत्य मात्या प्रजाता च प्रसूता च प्रसूतिका

(अमरकोश २/१६)

The synonyms of puerperial woman are as follows

(1) Satya Matya (2) Prajata (3) Prasuta (4) Prasutika (5) Prasuti[2]

In Rigveda these words have been used for 'Mother'. The word Sutika is related with the words (1) Sut (2) Sutuka (3) Sutika.

According to Kashayap unless and until the placenta is not expelled a woman can not be called as Sutika (Ka. Sh. Khi 11/6).[3]

Thus according to above version a woman who delivered the foetus and placenta is known as Sutika (Puerperal-women) and its Paricharya is known as Sutika Paricharya.

The patients taken in both group for study were found statistically homogeneous. On routine examination i.e. Haemoglobin TLC, DLC, urine for Routine and microscopic were not found to be of prime importance, all of them were within the normal range therefore it is not advisable to discuss them here.

Initially maximum number of cases have pain in abdomen, Backache, Bodyache, General weakness, Thirst and Perineal pain (70-80%) 16 to 25% cases had complaint of constipation in both the group. Gradually all the symptoms have been disappeared during IInd follow up in Group B while in group A it have been persisted to IInd follow up but disappeared in IIIrd follow up. The percent of improvement within the groups was found marked in group B with that of group A. The statistical comparison when done in between both the groups Group B has shown statistically significant improvement in comparison to Group A. This significant pattern was also found for temperature. As regard the involution of uterus in size with that of pubic symphysis was also found to be significant in improvement in group B with that of group A. However the lochial discharges in amount and colour were also found to be significant when findings of both the groups were compared with each other here also group B has dominated as regard the improvement on group A.

20th century is the era of scientific explanation of how and why? The principle of treatment in Ayurveda is totally based on so called 3-humours in the language of todays Modern Medical Science while in words of Ayurveda they are Vata, Pitta, and Kapha.

Therefore there is basic difference between the two. One can not exactly correlate fundamental theory of Ayurveda (Basic Principles) with that of Modern Medical Science. However, some co- relation at some extent might be possible.

Pancha-Kola Churna consists of five ingredients i.e.- Pippali, Pippali-Moola Chavya, Chitrak and Shunthi having Ushna veerya property therefore some Acharyas have named it as *'Pancha Ushna'*. Bhava-Prakash has mentioned clearly its collective property as Katu Rasa, Teekshna guna, Ushna Veerya and Katu vipak, having Kapha-Vata shamak property.[4] It has been observed that at the time of delivery vata is aggravated therefore vata shamaka property of the drug certainly gives a better result since having shoolahar, Vednasthapak Shothahar Jwarhar and Krimighna properties the drug has acted as improved tremendously the S/S, involution of the uterus and cessation of the lochial discharges[5].

Approximately all the mentioned drugs of Pancha-kola are anti microbial, antibacterial, anti inflammatory, anti pyretic, anti spasmodic and analgesic activities, on the basis of which it has improved tremendously on S/S[6,7,8].

As regard the mode of action of Dashmoolarista and Dashmoola Kashaya,its chief property is vata kapha shamaka.[9] Therefore it has also helped in the improvement of S/S.

Abhyang with 'Bala-Taila'[10] along with Kuti-Sweda with Dashmoola Kashaya is also vata kapha shamaka. Property of Abhayang (oleation) as sushruta is as follows

अभ्यंगो मार्दव करः कफ वात निरोधनः
धातूनां पुष्टि जननो मृजावर्ण बलप्रदः

(सु. चि. २४/३०)

The above verse clearly refers the importance of Abhyang (oleation) i.e. if done properly it softens the body suppresses the vitiated kapha and vata, strengthens the Dhatus and heals and strengthens the body.[11]

The swedan (steam bath)as mentioned by Sushruta makes the body supple, remove the stiffness of joint, cleanses the srotas, improves complexion, increases the appetite and digestion and restore relish for food. It also removes sluggishness and excessive sleep[12].

अग्नेर्दीप्ति मार्दवं त्वक्प्रसादं । भक्तश्रद्धां स्रोतसां निर्मलत्वम् ।।
कुर्यात स्वेदो हन्ति निद्रां सतन्द्रां । सन्धीन स्तब्धाश्चेष्ट वेदाशुयुक्त ।।

(सु. चि. ३२/१२०)

Thus in the light of above discussed facts, result of Group A and B, where group B has shown excellent result is that of Group A seems to be quite natural.

Conclusion

Thus in nut shell result can be concluded as follows

- As sutika kal is a critical period for woman, it needs a proper management and care with specific treatment
- In Sutika Paricharya lot of drugs has been prescribed by a various authors in single and compared form among them vata-kapha shamak drugs are of prime important.
- 'Panchkola' is a combination of five drugs known as 'Panchaushna' showed good and effective result when taken orally with Dashmoolarishta.
- It has property of Antibacterial, Antiseptic, Anti-inflammatory, Antispasmodic, Analgesic effect
- Panchakola has deepniya, Shothhar vatakapha shamaka properties.

- Bala taila (Abhayang) and sudation with Dashmoola kashaya with oral Panchakola Churna showed good and excellent result in group B.

Therefore it is advisable that this therapy (oral + Abhyanhga and Sudation) should be considered as routine therapy in sutika- Paricharya.

We hope the observation of this study may be confirmed by future research workers and the study will certainly prove beneficial in the treatment of Sutika Paricharya.

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Role of Daihika Prakriti in Excessive Uterine Bleeding

Neelam* and P.V. Tewari**

Abstract

Ayurveda recognises that physical and mental status or daihika and manshika prakriti play a dominant role in health and disease. Every individual has its own specific physical constitution which is termed as daihika prakriti and it may be defined as the state of the body which is unchangeable, not harmful to the time of fertilization.

Amongst various gynocological disorders seen by the doctor in her day to day practice excessive uterine bleeding is one of the commonest clinical manifestation.

The aim of study is to see the claims of ancient a charyees that daihila prakriti has got role in the different type of menstrual disorders if established may help -

1. In preventing the menstrual disorders.
2. In planning the line of treatment, better diagnosis and prognosis of menstrual disorders.

According to ancient texts prakriti plays a very important role in diagnosis, prevention, prognosis and treatment. Total 246 cases of different prakriti having excessive uterine bleeding have been studied and it was found that the women of pailtika and vata pattika prakriti are more suffer from the excessive and irregular uterine bleeding.

Introduction

Every individual has some inherent physical and mental constitution called prakriti. Though this is normal physiological state, however, it does influence the reaction occurring with in the body various state of doshas.

Menstruation is a cyclical phenomenon which occurs in a particular way in female, but whenever this become acyclic, excessive in amount and duration, it is called abnormal uterine haemorrhage. Excessive bleeding is a system not a disease which occurs due to variety of reasons, however, insizeable population of such cases are can not find any specific cause, inspite all the available diagnostic tools. Such cases are termed as cases of dysfunction or functional uterine bleedings.

The menstruation or artava is agneya in character, it is formed form rasa or rakta according to different achar. Amongst the do shas the pitta consists of Tajas mahabhuta is also agneya, which is very much similar in properties with rakta as well as artave. The vayu brings the artava to the fine dhamanies of garbhashaya, meaning there by that the vata and pitta may be considered mainly responsible for excessive bleeding per vaginum in the absence of any organic pathology. Now the question arises that whether the shas of normal prakriti of women have any influence on this condition or not?

In present work an attempt has been made to answer this question.

* Sr. Lecturer

** Professor & Ex. Head

Department of Prasutitantra, Institute of Medical Sciences Banaras Hindu University, Varanasi.

The aim of study is to see that daihik prakriti has got role in excessive uterine bleeding. Relation of daihika prakriti with this type of disorder if established may help -

- In preventing the excessive Uterine bleeding.
- In planning the line of treatment, better diagnosis and prognosis of excessive uterine bleeding.

Selection of cases

The patients attending S.S. Hospital, B.H.U. Varanasi, OPD of Prasuti Tantra with various complaints and on examination being diagnosed as cases of functional excessive uterine bleeding were the subjects of this study.

The patients having any suspicion of specific organic lesion specially of chronic nature, such as marked anaemia, tuberculosis, acute and chronic respiratory disorder, diabetes hypertension, hyperthyrodism, renal and cardiovascular disorders or any other disease influencing the general health of women were excluded from the study. The women having organic pathology of reproductive system, gross psychological abnormalities were also excluded from the study.

Patients having any inflammatory disorders or infections of reproductive system were initially treated with appropriate medication and after being relieved from reproductive disorders if systems of menstrual disorders persists were included in the study.

In these selected cases detailed history was taken. The amount of blood loss was assessed on the basis of statement given by the patients. Now special assessment of prakrit was recorded according to predesigned specific proforma. After completion of proforma the scores related to particular prakriti secured by individuals were counted and her daihika prakriti was levelled on the basis of maximum points belonging to that particular prakriti.

If an individual answered 60-80% questions in affirmative related to vatika and remaining 20-40% in affirmative of paittika and shlaismika prakriti, then individual was levelled as belonging to vatika prakriti, like this all the three prakriti were diagnosed, the individual answering 35-55% questions in affirmative belonging to two prakriti, she was levelled as duandvaja prakriti.

Result

Total 296 cases of different prakriti having excessive uterine bleeding have been studied.The results are given in different tables.

Table 1. Showing the indication of age and Parity in total cases.

Age in years	No. of Cases	Percentage	No. of Parity	No. of Cases	Percentage
15-20	39	13.17	0	56	18.91
21-25	68	22.97	1 - 2	79	26.68
26-30	65	21.95	3 - 4	71	23.98
31-35	46	15.55	5 - 6	66	22.23
36-40	44	14.86	7 - 8	22	7.43
41-above	34	11.50	9-above	02	0.67
Total	296			296	

Table 2. Showing incidence of socioeconomic status and occupation of total cases.

Socioeconomic status	No. of Cases	Percentage	Occupation	No. of Cases	Percentage
High class	29	9.79	Student	10	3.38
Meddle	167	56.41	Service	10	3.38
Low	100	33.80	House-wives	276	93.24
Total	296			296	

Table 3. Showing the incidence of age of menarche & intermenstrual period in total cases.

Age of Menarche in years	No. of Cases	Percentage	Inter-menstrual period in days	No. of Cases	Percentage
12-12	37	12.51	10-20	50	16.89
13-14	166	58.08	21-30	178	60.14
15-16	78	26.35	31-40	48	16.21
17-18	12	4.05	irregular	20	6.76
19-20	03	1.01			
Total	296			296	

Table 4. Showing the duration and amount of blood loss during periods in total cases.

Duration of menstrual blood loss	No. of Cases	Percentage	Amount of menstrual blood loss	No. of Cases	Percentage
2 - 3 days	24	8.1	Average	18	6.08
4 - 6 days	94	31.75	Heavy	170	57.43
7 - above	178	60.14	Very heavy	108	36.49
Total	296			296	

Table 5. Showing the colour, consistency & adour of menstrual blood loss in all the cases.

Colour of Menstrual blood loss	No. of Cases	Percentage	Consistency and odour of menstrual blood loss	No. of Cases	Percentage
Brownish	47	15.87	Normal	127	42.90
Dark red	85	28.72	Clotted	169	57.10
Brick red	164	55.41	Obnoxious	35	11.82
			No		
Total	296			296	

Table 6. Showing total cases of excessive uterine bleeding in the women of different types of daihika prakriti.

Prakriti	Total cases	Percentage
Vatika	5	1.68
Paittik	49	16.55
Slaismika	26	8.78
Vata - Paittika	126	42.56
Vata - Slaismika	40	13.52
Pitta - Slaismika	50	16.90

Correlation of daihika prakriti with inter-menstrual period duration, amount and specific character of menstrual blood loss.

Table 7. Showing the inter-menstrual period of excessive uterine bleeding cases according to different types of prakriti.

Inter menstrual period	Total cases	Vatika No.	Paittika No.	Shlaishmika No.	V+P No.	V+S No.	P+S No.
10 - 20 days	50	1	20	3	20	3	3
21 - 30 days	178	2	24	12	79	24	37
31 - 40 days	48	-	4	6	21	7	10
Irregular	20	2	1	5	6	6	-

Table 8. Showing the duration of menstrual blood loss in cases of excessive uterine bleeding according to different types of Prakriti.

Duration of menstrual blood loss in days	Total cases	Vatika No.	Paittika No.	Shlaishmika No.	V+P No.	V+S No.	P+S No.
2 - 324	3	5	1	11	2	2	
4 - 6	94	2	22	7	22	20	21
7 - above	178	-	22	18	93	18	27
Total	296						

Table 9. Showing the amount of menstrual blood loss in cases of excessive uterine bleeding according to different types of Prakriti.

Amount of menstrual blood loss	Total cases	Vatika No.	Paittika No.	Shlaishmika No.	V+P No.	V+S No.	P+S No.
Average	18	1	-	5	9	1	2
Heavy	170	2	33	12	63	23	37
Very heavy	178	2	16	9	54	16	11

Table 10. Showing the colour of menstrual blood of excessive uterine bleeding cases according to different types of Prakriti.

Colour of menstrual blood	Total cases	Vatika No.	Paittika No.	Shlaishmika No.	V+P No.	V+S No.	P+S No.
Brownish	47	2	6	5	18	11	5
Dark red	85	2	26	7	12	09	29
Brick red	164	1	17	14	93	20	16

Table 11. Showing the consistency of menstrual blood of excessive uterine bleeding cases according to different types of Prakriti.

Colour of menstrual blood	Total cases	Vatika No.	Paittika No.	Shlaishmika No.	V+P No.	V+S No.	P+S No.
Normal	136	4	22	3	65	14	28
Clotted	160	1	27	23	61	26	22

Table 12. Showing the Odour of menstrual blood of excessive uterine bleeding cases according to different types of Prakriti.

Odour of menstrual blood	Total cases	Vatika No.	Paittika No.	Shlaishmika No.	V+P No.	V+S No.	P+S No.
Obnoxious	35	2	6	7	3	2	15
No	261	3	43	19	126	38	35

Discussion

The prakriti is determined by the dosha during fertilization. This prakriti is classified on the basis of relative predominance of one or more of these vata, pitta and kapha doshas. Physiological dominating doshas can get aggravated easily and earlier even if slight abnormal dietetic or mode of life likely to aggravate that particular dosha is used, for example an individual of vata prakriti will be relatively more vulnerable for aggravation of vate ever if ruksha etc. Diets are used in little quantity. This prakriti also influences susceptibility to disease and pain threshold. These points had to be kept in mind while diagnosing a disease. Even line of treatment had to be modified on the basis of this physiological preponderance of specific dosha, for example if an individual of vata prakriti suffers from the disease of kapha, the line of treatment and selection of drugs had to be done in such away, which inspite of suppressing the kapha dosha does not vitiate the vate. All these points emphasized the importance of the study of prakriti in any disease.

Menstruation is basically a catabolic process under the control of pituitary and ovarian hormones. When normal menstruation becomes acyclic, excussive in amount and duration, a change in normal character then cause excessive uterine bleeding.

In present work tow types of diagnosis has to be done. First the diagnosis of one's individual prakriti and other diagnosis of menstrual disorders. A detail proforma including

all the points described by almost all important authors of classics were considered the best method of diagnosis of prakriti and specific proforma was made for the purpose. For diagnosing the excessive uterine bleeding specific history given by the women and physical examinations the help of all modern investigative tools was taken.

Maximum cases of excessive uterine bleeding were belonged to vata-paittika Prakriti followed by paittika or pitta-shlishmika prakriti. Only 5 women of vatika prakriti were seen .

The women of all ages parities gravidities with various duration of married life suffered from excessive uterine bleeding. The patients of this symptom seek medical advice comparatively earlier because majority of cases had past duration of 3-12 months. The present study also indicates that this disorders has tendency of chronicity in nature as few women of above years history came for treatment. Majority of parous women having 2 to 4 children suffered from this disorder between the age group of 21 to 30 years, meaning that excessive uterine bleeding is a disorder of active reproductive life and its incidence decline with the increase in age where the organic pathology is more prevalent. In present study the cases of all age group were found which is reported by kingal hofer (1941), that no age is exempted from this disease in few cases just immediately after menarche and in few women during pre-menopausal stage this condition is noticed.

There was no specific correlation in between age and parity with prakriti of women, however more predominance of nulliparity in the women of vatika, vata-paittika, Vata-Shlaishmika prakriti and of grand multiparity in Shlaishmika and pitta-Shlaishmika prakriti was noted.

Maximum middle class followed by lower class house wives of this study suffered from excessive uterine bleeding. Majority of the cases of this series had normal age of menarche i.e. 13-14 Years. 37 and 78 patients of excessive uterine bleeding had their age of menarche as 10-12 years and 15-16 years respectively, very delayed age of menarche was reported by only three cases. There was no correlation between age of menarche and daihika prakriti of the women. This shows that daihika prakriti does not influence the initial physiology of the women. Pain of any type, indigestion and constipation were maximum in the women of vatika prakriti. Loos motions, thirst, burning sensation and weakness were commonest finding of pitta prakriti. Disgust, sleepiness, nausea and vomiting were maximum in women of Shlaishmika prakriti. this was found due to the fact that presence of any associated symptom is often influenced by the basic dosika composition of the body or daihika prakriti. This daihika prakriti influences even normal physiology with slightest derangement of even of their system the normal function of body get distrubed. Naturally the symptoms mainly related to the particular dosha mentioned above were found in the women of respective daihika prakriti. Daihika prakriti does not seem of influence past duration of excessive uterine bleeding.

Majority of women had their intermenstrual period of 21-30 days. Early and irregular intermenstrual period was found in 50 and 20 cases respectively. Early, Irregular and prolonged intermenstrual period of excessive uterine bleeding were more common in cases of paittika and vata-paittika and Shlaishmika respectively as shown in table no. 7

Maximum cases reported heavy bleeding for more than 6 days, Brick red clotted menstrual bleeding was more commonly seen in this disorders. Heavy and very heavy bleeding were found in maximum cases of vata-paittika prakriti. In good number of cases of paittika and pitta-Shlaishmika prakriti. The bleeding was found heavy and very heavy in

amount of shown in table No.9. Prolonged duration of menstrual blood loss in maximum cases of vata- paittika and pitta-Shlaishmika prakriti. The women of pitta- Shlaishmika prakriti mainly complained of obnoxious small in menstrual bleeding.

Artava is agneya which characteristic is found in the pitta, when the women had physiological predominance of this dosha, artava was more, resulting in its more accumulation in garbhashya. Thus the women of paittika and vata-paittika prakriti suffered more from excessive uterine bleeding. The duration, amount and character of menstrual blood loss even in pathological condition appears to be greatly influenced by the physiological dosha off daihika prakriti. Prolong duration with excessive bleeding was commonest finding of paittika, vata-paittika and pitta prakriti. The difference may be due to effect of dosha on the body, Brick red bleeding was more common in paittika, vata-paittika, cases probably due to their nature. Heavy clotted bleeding was maximum in cases of dvnadvaja prakriti, probably because of slight more blood loss and influence of prithivi components of Shlaishmika prakriti.

In further study it was found that maximum women of vata-paittika prakriti suffered from this disorders. The women of vatika and Shlaishmika prakriti were the least sufferer. After vata- paittika prakriti it was common in paittika, pitta-Shlaishmika and vata-Shlaishmika prakriti. Increased amount of artava bought into garbhashya dhamni by vata is basic pathogenesis of this disorder. Artava is very similar in properties with pitta. It appears that the women having both these dosas in their prakriti got their derangement with the slightest aggravation and the result was excessive uterine bleeding. The inclination towards chronicity of the disease does not found to be related to daihika prakriti. Amount and duration are related to the prakriti as the women vata-paittika prakriti had more amount of bleeding comparatively for longer duration. The shortest duration and minimal bleeding was noted in women of vatika prakriti.

Conclusion

1. The women of paittika and vata-paittika prakriti are more prone to suffer from the functional menstrual disorders like excessive and irregular uterine bleeding.
2. Shlaishmika prakriti women were minimum sufferer from this type of menstrual disorder.
3. No case of same prakriti was found to be suffering from excessive uterine bleeding.
4. Prolong duration with excessive uterine bleeding of brick red colour was commonest finding of paittika, vata-paittika and Shlaishmika prakriti.
5. Clotted bleeding was maximum in cases of dvandaja prakriti.

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Neuropsychophysiological assessments of a compound formulation of *Bacopa monniera* and *Acorus calamus* as a potent Medhya Rasayan agent

Aruna Agrawal, S.R. Pathak and G.P. Dubey

Abstract

The combined effect of organic extracts of B. monniera and A. calamus was clinically evaluated on memory span, attention span and psycho-motor performance along with galvanic skin resistance (GSR), muscle action potential (EMG) and alpha and beta brain wave frequency (EEG) recordings. In the present study, 133 university students of both male and female sexes showing cognitive deficits were selected. A double blind clinical procedure was adopted to assess the beneficial effect of the test formulation.

After basal recordings of the above selected parameters, the test formulation was orally administered in a prescribed doses continuously for six months. Successive follow-up studies were carried out at the interval of each month. The test formulation led to a statistically significant increase in memory span, attention span, psychosomotor performance, GSR and alpha brain wave frequency along with a significant decrease in muscle action potential and beta activity. Mental fatiguability and anxiety level also exhibited their improved score following test formulation.

The present data thus provided enough evidence to prove the potent beneficial Medhya rasayana effect of the test drug with overall improvement in mental performance. The test drug did not show any adverse effect in spite of prolonged administration during clinical trial.

Introduction

During last three decades, the advances in neurobiology, neurophysiology, neurochemistry and neuropsychopharmacology have led to the discovery of deficits in electrocortical activity, neurochemistry of brain, cerebral circulation and its metabolism. Such changes have been found to be associated with the regression in the most important cognitive functionings like learning and memory caused by various etiological factors. Gradual loss of memory, insomnia and fatigue are recognised as the behaviour phenomena which are largely involuntary, and mediated via the somatic division of nervous system (Martin, 1971). The autonomic dysfunctions have also been found to be associated with sleep disturbances, concentration disability and loss of memory. Several workers have pointed out that attention span, memory span and reasonings are significantly deteriorated due to sympathetic overactivity (Martin & Vlandimir 1994). It has been indicated that strong sympathetic arousal may produce many neurological disturbances along with loss of memory (Jacobs and Myers 1976).

The constant anxiety & tension are found to be the most common factors that adversely affect the memory and other mental functionings (Eysenck 1981, 1982). Several neuropsychophysiological assessment on clinical subjects are available to indicate that the

Sharira-Kriya Unit, Department of Basic Principles, Institute of medical Sciences, Banaras Hindu University.

process of retention and recall of information are highly hampered due to continuous anxiety and stress (Lance and Mc Leod 1981). In general practice, most often it is observed that hyper-excitable individuals usually have a poor concentration ability and reduced short term memory. Besides these, the changing social setup, increasing industrialization, urbanization, work pressure, gap between expectation and achievement, economic burden, uncertainties in life settlement etc. are also the most important factors affecting the mental performance of the young adults.

Keeping the current researches in view, attention has been directed to find out some suitable remedy which can overcome the memory impairment and can improve overall mental performance.

In Ayurvedic system of medicine, the whole plant of Bacopa monniera (Brahmi) and rhizomes of Acorus calamus (Vacha) are the most important plants mentioned as 'Rasayan' with their major influences as 'Medhya'. They are widely claimed as restoratives, nervine and mental tonics with their wide usefulness in the promotion of mental health and in the management of different types of mental and nervous disorders, besides their several other actions and uses (Nadkarni 1954). They have been exclaimed to be exerting their prominent action on central nervous system where they improve grasping power, memory, intellect and speech, and correct aberrations of emotions, mood and personality of the individuals (Maroli and Javale 1982).

Various experimental studies conducted on alc. extract and glycosidal fractions of both the plant materials have shown their actions of not only facilitating different discrimination learning and retention of memory of experimental rats (Singh & Dhawan 1982; Singh et al. 1988; Agrawal et al. 1993a; Dubey et al. 1998a) but also mitigating various stress induced changes in albino-rats (Pathak 1990; Agrawal et al. 1993a). Clinically, the total alc. extract, defatted and oil free alc. extract and glycosidal fraction applied separately and in mixture form of both the plants have demonstrated to be improving attention, learning and memory span of the school going normal and mentally deficit, hyperkinetic and stuttering children as well as the people of senile dementia (Sharma et al. 1984; Agrawal et al. 1990, 1993b; Dubey et al. 1998b).

The above plant contents have also express their action of reducing level of anxiety, lack of concentration, rate of mental fatigueness and memory span of the normals and anxious/anxiously - depressed human adults (Agrawal et al. 1998; Dubey et al. 1998b).

Following above facts on the scope of these two herbal medicaments, the present study has been launched to assess and validate the influence of suitable mixture of organic extract of both the plants on different aspects of mental performance of University students showing cognitive deficit on using different highly sensitive neuro-psycho-physiological recordings.

Materials and Methods

133 adult students (86 males, 47 females) aged 19-39 years from the different Faculties of the University provided the data for the present study. The cases did not report any organic or psychological disorder in the recent past. The short term and long term memory span was measured by a sofisticated electronic memory span apparatus and was calculated in terms of score.

Attention span was determined by using Electronic Attention span apparatus prepared for the purpose by Medicaid system, model no. FM-1500. Rotary persuit Task apparatus was

applied to measure the psychomotor performance of the subjects. The anxiety level of the subjects was determined by adopting Sinha-Anxiety Scale.

Various electrophysiological measurements like E.E.G., E.M.G., and G.S.R. were done by using the Biofeedback apparatus. The alpha and beta brain wave frequencies were filtered from the general E.E.G. with the help of multi-channel E.E.G. feedback monitor (EA - 822A, Medicaid System). Similarly, the occipito- frontalis muscle action potential was calculated by using E.M.G. biofeedback apparatus (MBF - 4000, Medicaid System) at the sensitivity of 200-2000 μ volts/sec. and the recordings were done by biofeedback recorder. Galvanic Skin Resistance (S.G.R.) was also determined by using G.S.R. feedback apparatus (GBF, 2000, Medicaid System) at the sensitivity of 5 to 10 k.ohm per second on a constant chart speed of 25 mm in the Biophysical recorder.

After initial investigations and necessary recordings for the basal state, the test formulation filled in capsules (350 mg) was given continuously for six months in the following dose ratio of organic extract of its two ingredients as (i) B. monniera 325 mg and (ii) A. calamus 25 mg i.e., 350 mg per day

In order to compare the results, 44 volunteers including 28 males and 16 females, were given placebo (sugar powder in capsules similar to test formulation) for the same duration.

All the investigations were repeated at the interval of one month. The initial values were compared with the values obtained at the end of six months of continuous treatment. The data obtained were statistically analysed and compared. The degree of significance was measured on using students paired t-test.

Results and Observations

In the present series of study, the test drug produced highly significant ($p<0.001$) beneficial effect on both short term and long term memory span as well as attention span than placebo series. A marked significant ($p<0.01$) reduction in anxiety level was also noted after six months of drug treatment as compared to placebo group (Table 1 and 2).

Table 1. Effect of test formulation on short and long term memory span following six months of treatment (Value are Mean ±SD).

Clinical groups	Parameters	Memory span in score				Comparison initial Vs Six months therapy
		Initial	After 2 months therapy	After 4 months therapy	After 6 months therapy	
Placebo treated (N = 44)	Short-term memory	73.44 ± 5.80	72.89 ± 4.92	73.38 ± 6.02	74.02 ± 5.62	P>0.05
	Long-term memory	25.36 ± 2.47	25.30 ± 2.02	24.84 ± 2.96	23.98 ± 2.91	P>0.05
Test drug treated (N = 133)	Short term memory	72.80 ± 4.67	76.30 ± 4.82	80.25 ± 5.02	81.92 ± 5.08	P<0.001
	Long-term memory	24.87 ± 3.04	26.39 ± 2.45	29.44 ± 3.06	30.08 ± 2.28	P<0.001

Table 4. Changes in alpha and beta brain frequencies under the influence of six months of treatment with test formulation (Value are Mean ±SD).

Clinical groups	Parameters	Memory span in score				Comparison initial Vs Six months therapy
		Initial	After 2 months therapy	After 4 months therapy	After 6 months therapy	
Placebo treated (N = 44)	Alpha frequency (Hz)	6.39 ± 0.62	5.85 ± 0.29	6.28 ± 0.45	5.80 ± 0.36	P>0.05
	Beta frequency (Hz)	29.85 ± 2.65	30.34 ± 2.86	30.49 ± 3.04	31.64 ± 3.21	P>0.05
Test drug treated (N = 133)	Alpha frequency (Hz)	5.88 ± 0.45	7.45 ± 0.33	8.92 ± 0.28	10.44 ± 0.86	P<0.001
	Beta frequency (Hz)	30.26 ± 2.25	24.85 ± 2.86	20.44 ± 2.23	19.62 ± 2.37	P<0.01

Table 5. Changes in ccipito-frontalis muscle action potential and Galvanic skin resistance following six months of treatment with test formulation (Value are Mean ±SD).

Clinical groups	Parameters	Memory span in score				Comparison initial Vs Six months therapy
		Initial	After 2 months therapy	After 4 months therapy	After 6 months therapy	
Placebo treated (N = 44)	E.M.G. (μ volts/sec)	45.85 ± 6.92	44.12 ± 7.21	48.04 ± 6.94	48.65 ± 7.88	P>0.05
	G.S.R. (k.ohms)	125.96 ± 10.32	119.65 ± 8.32	118.86 ± 9.04	121.65 ± 10.60	P>0.05
Test drug treated (N = 133)	E.M.G. (μ volts/sec)	49.68 ± 5.26	38.66 ± 4.85	31.44 ± 4.02	28.29 ± 3.25	P<0.001
	G.S.R. (k.ohms)	123.75 ± 6.65	132.68 ± 5.92	141.98 ± 5.88	148.33 ± 6.80	P<0.001

Similarly, a profound improvement in psychomotor performance and resistance in mental fatigueness under the influence of test drug were observed in the treated subjects as compared to placebo treatment (Table 3).

Basal values of alpha frequency was found to be increased to a highly significant level ($p<0.001$) following test drug therapy after six month as compared to placebo group. On contrary, the beta frequency was considerably reduced in the drug treated group from their basal state than placebo treated subjects (Table 4).

Simultaneous to the above events, a highly marked reduction in frontalis muscle action potential (E.M.G. level) and significant ($P<0.001$) increase in Galvanic skin resistance (G.S.R.) was also noticed under the influence of test drug than placebo treatment (Table 5).

No any allergic and other untoward effect of the test formulation could be observed in the treated subjects during clinical trial.

Discussion

Exposure of acute or chronic stressful situations are well known to accumulate the state of severity of anxiety and/or depression demanding for adjustment and adaptation within the individual (Levi 1979; Kaplan & Sadock 1991). Due to constant stressful condition, the changes are continued to contribute to different cognitive deficits, abnormality in mental performance, various neurophysiological, neurochemical, neuroendocrinal, metabolic and immunological altrations that can lead to a variety of psychosomatic and organic disorders, depending upon related coping ability and tolerance, external environmental and internal individual's host factors (Anisman et al. 1981; Solomon et al. 1985; Pathak, 1990).

Various psychotropic drugs particularly those grouped as standard chemosynthetic anxiolytics and antidepressants have been observed to be introducing adaptogenic and anti-stress effects without impinging any direct influence on cognitive facets in different clinical conditions (Grundy 1985, Kaplan & Sadock 1991). But due to several hazardous effects they produce on long-term administration, such agents warrant a need of search for safer medicaments to be used in rectifying the problems of stress and their various neuropsychophysiological manifestations including cognitive and other mental performance.

In the present study, as the test drug produced the significant increase in memory span, attention span along with marked decrement in anxiety level of the treated subjects. Furthermore, the treatment with test formulation also precipitated significant increase in alpha wave & G.S.R. levels and decrease in muscle action potential and beta frequencies. These alterations indicate the state of mental upliftment and neuro-muscular relaxation, and decrease in sympathetic over-activity in the treated subjects. The above changes in psychophysiological pattern are due to the tranquilising, anxiolytic, muscle relaxant and memory enhancing actions of the ingredients of the test formulation as exclaimed in several studies on normal and stressed experimental animals (Satyawati et al. 1976; Singh et al. 1988; Agrawal et al. 1993a Dubey et al. 1998a), and clinical studies on anxiety and anxiety induced depression dominant cases (Agrawal et al. 1998; Dubey et al. 1998b).

Many factors are known to influence the memory facets. Among these, stress, anxiety and tension following sympathetic overactivity and disturbances in the attentional process are highly responsible for memory loss (Lance and Mc Leod 1981, Eysenck 1982; Martin & Vlandimir 1994). Reduction in sympathetic over- acitivity, anxiety and stress as induced by the test formulation supports the achievement of improvement in attention span memory span, and psychomotor performance besides its direct influences on attention as well as

memory span in the test drug treated subjects having different cognitive deficits before treatment.

The reported deficits in the cognitive function in the selected subject appear to be due to high anxiety level that may be the result of continuous face of different types of stress or in their life with over-sympathetic activity recorded in terms of high beta activity, high muscle action potential and low alpha and G.S.R. levels in the subjects during their basal recordings.

Thus with the above properties of influencing the different neuropsychophysiological recordings of the treated subjects indicative of restoring and/or uplifting the nervous and mental activities along with the psychotropic function of alleviating the mental mal-functioning. The test formulation appears to be a potent Medhya-Rasayan agent and as a drug of choice to be used in the management of stress and stress induced deficits in cognitive and other mental performance of the matured or aged individuals.

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Scope of Ayurvedic Herbal Medhya Drugs as Natural Agents Facilitating Learning and Memory - A Scientific view

S.R. Pathak and G.P. Dubey

Key words

Medhya drugs, Learning & memory, Neurotransmitters

Abbreviated words

Ep = Epinerphrine, NEp (NE) = Nor-epinephrine, DA = Dopamine, 5-HT = 5-Hydroxytraypatamine (Serotonin), ACh = Acetylcholine, Hist. = Histamine, GABA = γ-aminobutyric acid, Glu. = Glutamic acid, IQ = Intelligence Quotient.

Introduction

A number of pharmacological substances have been in use for many years in attempts to improve memory in healthy subjects, besides their most fascinating clinical use to retard the decline of memory in neurologically diseased individuals, or to improve the cases following other clinical disorders associated with memory deficits (Squire and Davis 1981). In modern "Allopathic system of medicine", a variety of drugs with a wide range of pharmacological actions like CNS stimulants, cerebral blood flow modifiers, stimulators of cerebral protein synthesis etc. inducing non-specific arousal of cerebral functions associated with acceleration in learning and memory processes, have been indicated for the above purposes (Pilcher 1979). Several other drugs specially grouped under the name of "Nootrpic Agents" with their specific influences of improving memory and other related cerebral phenomenon have also been brought out in recent days for similar clinical uses. Infact, such agents are exclaimed with devoid of significant psychotropic, autonomic and toxicological effects even on long term administration primarily aimed at treating neuro-psychological, behavioural and mental disturbances of gerontopsychiatric patients (Giurgea 1975).

With the similar objectives, ancient "Ayurvedic system of medicine" has already maintained several naturally occurring medicinal plants under the name of "Medhya" in this regard. Literally, "Medhya" refers to an agent improving one or more of the three integrated principal aspects of higher brain function namely *Dhi* (Ability or Power of acquisition/ Intelligence), *Dhriti* (Ability or Power of retention/patience) and *Smriti* (Ability or Power of recall/memory) encompassing Medha of the individuals (Singh 1977b, Singh et al. 1984). By virtue of inducing mental upliftment as one of the major influences through a number of ways, several medicinal plants classically mentioned as "Rasayan drugs" in Ayurveda are primarily claimed as Medhya. In addition to the general "Rasayan drugs" where Medhya effect is one of the fundamental issue, there is a special class of some Rasayan drugs called "Medhya Rasayan" which is supposed to be having specific influence on above higher brain function. Several other common drugs possessing above properties also, have also been described under the head of "Medhya Dravyas" in different Ayurvedic texts (Table 1 & 2).

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Table 1. List of plants described as Medhya drugs in different Ayurvedic Tests.*

Sl. No.	Name of plants		Botanical/Family	References					
	Ayurvedic	Botanical/Latin		C. S. S.	S. S. S.	K. S. S.	A. S. S.	B. P. S.	B. R.
1.	Brahmi	*Bacopa monniera* (Linn.) Pennell.	Scrophularinae	+	+	+	+	+	–
2.	Maudukaparni	*Hydrocotyle asiatica* Linn.	Umbelliferae/Apiaceae	+	+	+	+	+	–
3.	Shankhapushpi	*Convolvulus pluricaulis* Chois.	Convolvulaceae	+	+	–	+	+	+
4.	Jyotishmati	*Celastrus paniculatus* Willd.	Celastraceae	–	–	–	–	+	–
5.	Vacha	*Acorus clamus* Linn.	Araceae	+	+	+	+	–	–
6.	Jatamansi	*Nardostachys jatamansi* DC.	Valerianaceae	–	+	–	+	+	–
7.	Guduchi	*Tinospora cordifolia* Miers.	Menispermaceae	+	+	–	+	–	+
8.	Yastimadhu	*Glycyrrhiza glabra* Linn.	Papilionaceae/Fabaceae	+	–	–	+	–	–
9.	Satavari	*Asparagus racemosus* Willd.	Liliaceae	+	+	+	+	+	+
10.	Haritiki	*Terminalia chebula* Rotz./C.B. Clarke	Combritaceae	+	+	+	+	+	+
11.	Amalaki	*Phyllanthus emblica* Linn.	Euphorbiaceae	+	+	+	+	+	–
12.	Apamarga (Chichara/Latajeera)	*Achyranthes aspera* Linn.	Amaranthaceae	+	+	–	+	+	+
13.	Pippali	*Piper longum* Linn.	Piperaceae	+	+	+	+	+	–
14.	Kustha (Kooth)	*Saussurea lappa* C.B. Clarke	Compositae	–	+	+	+	–	+
15.	Haimavati	(a) *Iris germanica*** Linn.	Iridaceae	+	+	+	+	–	–
	(Paarseek vacha/Baal vacha)	(b) *Paris polyphylla***	Liliaceae						
16.	Citraka	*Plumbago zeylanica* Linn.	Plumbaginaceae	+	+	+	–	–	–
17.	Haridra	*Curcuma longa* Linn.	Zingiberaceae	+	+	+	–	–	–
18.	Matsyaksi	*Alternanthera sessilis* DC.	Amaranthaceae	+	+	–	+	–	–
19.	Sariva (Anantamoola)	*Hemidesmus indicus* R.Br.	Asclepiadaceae	–	+	+	+	–	–
20.	Siddharthak (Sarshap)	*Brassica campestris* V.S. Prain.	Cruciferae	–	+	+	+	–	–
21.	Gambhari	*Gmelina arborea* Linn.	Verbenaceae	+	–	–	–	+	–
22.	Nagabala	*Sida veronicaefolia* Lam.	Umbelliferae/Apiaceae	+	–	+	–	–	–
23.	Satapuspa (Sounf)	*Foeniculum vulgare* Mill.	Myrsinaceae	–	–	+	–	+	+
24.	Vidagna	*Embelia ribes* Burn. f.	Myrsinaceae	+	–	–	–	–	–

Table 1 Contd...

Sl. No.	Name of plants		Botanical/Family	References					
	Ayurvedic	Botanical/Latin		C. S. S.	S. K. S.	A. S.	B. P.	B. R.
25.	Bhallataka	*Semecarpus an acardium* Linn.f.	Anacardiaceae	–	–	–	–	+	–
26.	Jeeraka (Sweta)	*Cuminum cyminum* Linn.	Umbelliferae/Apiaceae	–	–	–	–	+	–
27.	Jeeraka (Krishna)	*Carum bulbocastanum* W. Koch.	Umbelliferae/Apiaceae	–	–	–	–	+	–
28.	Kadambapuspika (Mundee)**	*Sphaeranthus indicus* Linn.	Compositae	–	–	–	–	+	–
29.	Samanga (Manjistha)	*Rubia cordifolia* Linn.	Rubiaceae	–	–	+	–	–	–
30.	Svetavalguja (Bakuchee)	*Psoralea corylifolia*	Papilionaceae/Fabaceae	–	+	–	–	–	–

* After Sharma R.D. (1978) : "Role of Medhya Rasayan in children", Ph.D. Thesis, Department of Prasuti Tantra, I.M.S., B.H.U., Varanasi.

** Controversial

C.S. = Charak Samhita (700 B.C.), Comm. Chakrapani, Nirnaya Sagar Press, Bombay (1941).

S.S. = Susruta Samhita (600 B.C.), Comm. Dalhana, ed. Y.T. Acharya, Nirnaya Sagar Press, Bombay (1915).

K.S. = Kasyap Samhita (500 B.C.) Comm. Satyapal Gupta, Chowkhambha Sanskrit Series Office, Varanasi (1953).

A.S. = Ashtang Sangraha (600 A.D.) Comm. Arun Dutt, Nirnaya Sagar Press, Bombay (1925).

B.P. = Bhava Prakasha (1600 A.D.) Comm. & ed. K.C. Chunekar, Chowkhambha Sanskrit Series, Chowk, Varanasi (1969).

B.R. = Bhaisajya Ratnawali (1800 A.D.); Comm. Ambika Dutta Shastri, 3rd ed., Chowkhambha Sanskrit Series, Varanasi (1969).

+ = mentioned

- = not mentioned.

Table 2. List of some other plants conceived as Medhya drugs in Ayurveda*

Sl. No.	Name of Plants		Botanical family
	Ayurvedic	Botanical/Latin	
1.	Kooshmand	*Benincasa hispida* Thunb.	Cucurbitaceae
2.	Ustukhoodas	*Lavendula stoechas* Linn.	Labiatae
3.	Chorak	*Angelica glauca* Edgew.	Umbelliferae
4.	Vetas	*Salix caprea* Linn.	Salicaceae
5.	Jala Vetas	*Salix tetrasperma* Hoxb.	Salicaceae
6.	Arand	*Ricinus communis* Linn.	Euphobiaceae
7.	Tagar	*Valeriana wallichii* DC.	Valerianaceae
8.	Nirgundee	*Vitex negundo* Linn.	Verbenaceae
9.	Rasone (Lahasun)	*Allium sativum* Linn.	Liliaceae
10.	Udasaleeb	*Peonia emodi* Wall.	Ranunculaceae
11.	Bhoorjapatra	*Betula utilis* D. Don.	Betulaceae
12.	Til	*Sesamum indicum* Linn.	Pedaliaceae
13.	Drakchha	*Vitis vinifera* Linn.	Vitaceae
14.	Madayantika (Mehandi)	*Lawsonia inermis* Linn.	Lythraceae
15.	Karpoor	*Cinnamomum camphora* Nees. & Bberm.	Laraceae
16.	Taruni (Gulab)	*Rosa centifolia* Linn.	Rosaceae
17.	Agastya (Agust)	*Sesbania grandiflora* Pers.	Leguminosae (Pipilionatae)
18.	Dadim	*Punica granatum* Linn.	Punicaceae
19.	Mustak	*Cyperus rotundus* Linn.	Cyperaceae
20.	Damanak	*Artemisia vulgaris* Linn.	Compositae
21.	Jateephale	*Myristica fragrans* Houtt.	Myristicaceae
22.	Shamee	*Prosopis cineraric* Druce	Leguminosae
23.	Shallakee	*Boswellia serrata* Roxb.	Burseraceae
24.	Afasanteen	*Artemisia absinthium* Linn.	Compositae
25.	Sunikhannak	*Marsilea minuta* Linn.	Marsileaceae
26.	Doorva	*Cynodon dactylon* Pers.	Graminae
27.	Kamal (Purain)	*Nelumbo nucifera* Gaertn.	Nymphaeceae
28.	Kumud (white to red)	*Nymphaea nouchali* Burm.f.	Nymphaceaceae
29.	Utpal (Kui) (Blue)	*Nymphaea stellata* Willd.	Nymphaeaceae
30.	Chandan (sweta)	*Santalum album* Linn.	Santalaceae
31.	Vridhadaruk (vidhara)	*Argyreia speciosa* Sweet.	Convolvulaceae

* As per P.V. Sharma (1994); Dravya Guna Vigyan, Vol. II, (Vegetable Drugs), 16th edition, Chaukhambha Bharati Academy, Gokul Bhawan, K37/109, Gopal Mandir Lane, P.O. Box No. 1065, Varanasi (India).

Thus, the "Medhya property" in an Ayurvedic drug appears to be an entity of fundamental importance which needs scientific appraisal for its clarified actions and uses.

In a broad generalised sense, Medhya drugs of Ayurveda are considered to possess varying degree of certain psychotropic actions apart from their above influences. This contention is further supported by the fact of their literal recommendation for their specific use in the treatment of different psychic, psychosomatic and other related disorders where the real objective of therapy is to achieve an improvement in mental functions alongwith a tranquility of the patients (Singh 1988). Following such a literary background, several modern researches done so far on some such drugs, have similarly indicated that these drugs have varying degree of psychotropic actions particularly of the tranquilising one alongwith their other actions of improving memory and intelligence etc. (Chopra et al. 1958, Satyavati et al. 1976, 1987, Asolkar et al. 1992). Thus, there is possibility that the Medhya drugs of Ayurveda may have a primary beneficial effect on Medha (memory and intelligence etc.), in addition to their secondary tranquilising effect or vice-versa. To find out these properties in Medhya drugs of Ayurveda, there is an urgent need of comprehensive methodological evaluation of the said Medhya effect of such drugs on scientific footings to develop their adequate utilization in the current days in clinical practice with a wide national and international acceptance. Certain recent studies conducted in the same line on some such drugs mentioned in the present paper have indicated the usefulness of these herbal drugs as natural and safer medicinal agents enhancing learning and memory.

Neurophysiological Mechanism of Action of Drugs Facilitating Learning & Memory

Several recent studies passing through a widened effort of analysing neurophysiological facets of brain function have indicated that the drugs increasing learning and memory appear to influence one or more stages of the four memory processes viz. sensory registration/ acquisition, storage/consolidation, maintenance, and retrieval/recall through either of the following actions (Giurgea 1978).

(1) a non-specific action increasing attention and acquisition processes through increasing neuronal arousal without affecting memory storage and retrieval,

(2) a non-specific action improving memory and other mental functions via increasing general neuronal nutrition through increasing providence of adequate nutrients following cerebro-arterial dilatation,

(3) a specific action facilitating learning acquisition and storage of the memory engram through

   (a) activating memory components of the neuronal system,

   (b) facilitating inter-hemispheric transfer of informations mainly across the corpus callosum,

   (c) strengthening tonic control upon sub-cortical centres,

   (d) enhancing cerebral resistance in against to learning impairing factors including different aggressions, environmental and chemical challenges and stress factors.

With the growing knowledge on neurochemical basis of brain function, certain metabolic and functional changes in several central neurotransmitters and neuroproteins lineating the memory processes have been ruled out with certain possibilities (Tapia and Sandoval 1977). Although the role of multiple neurotransmitter systems in the mediation of neurobiological changes responsible for affecting all the four stages of memory processes is only poorly understood. However, the data available with several studies are consistent that

training/agents inducing an alertness or electrocortical arousal following either a decrease in central 5-HT (serotonin) level and serotonergic activity or increase in different central catocholamines level and catecholaminergic activity and/or ACh level and cholinergic activity, facilitate the memory formation and its storage. In contrast, agents inducing a decreased alertness or electrocortical depression following either increase in central 5-HT level and serotonergic activity or decrease in central catecholamines level and catecholaminergic activity and/or ACh level and cholinergic activity or destroying catecholaminergic and/or cholinergic neurons, tend to produce a disruption of the memory processes (Leonard & Beer 1975, Zornetzer 1978, Karczmer 1978, Squire and Davis 1981, Perry 1986). These effects appear to be time dependent and their primary action is on the memory storage processes of recently acquired information (Hunter et al. 1977).

Apart from these, the formation of stable long term memory appears to depend upon the maintenance of activities in cholinergic and catecholaminergic systems as well as some degree of inhibition in serotonergic system. It holds to the fact that the compounds which alter any of the above specific neurotransmitter system act directly upon the memory trace, where as those affecting non-specific processes serve to modulate the memory trace by their common action upon arousal functions (Hunter et al. 1977).

A direct evidence linking amino-acids neurotransmitters with memory processes is sparse. However, amino-acids such as GABA and glutamate have been claimed in various studies to be involved in memory & related cerebral functions. In fact, certain agents or conditions inducing decrease in brain GABA seem to be producing deficits in memory (Alpern and Jackson 1978, Roser and Iverson 1986). In contrast, certain GABA memetics inducing increase in cortical GABA with devoid of motor (somatic), autonomic or other toxic effects appear to facilitate learning and memory (Giurgea 1976, Mindus et al. 1976), apart from protecting the brain from amnestic effects of several antagonsistic factors (Skondia 1979). It is argude that besides interacting with several brain neurotransmitters, GABA also seems stimulating protein synthesis in the brain (Baxter et al. 1972) which results in improving memory and related behavioural processes (Rigter et al. 1975, Tunnicliff et al. 1976). Infact, agents inhibiting protein synthesis probably blocking concomitantly the synthesis of GABA neurotransmitter in the brain act to inhibit/block learning and memory (Flexner et al. 1975). Such functions have been found to be related positively with the cortical content but negatively with the hippocampal content of GABA involved in learning & memory processes (Rick et al. 1971). Infact, different to cerebral cortex, inter-hippocampal increase of GABA induces amnestic effects and attenuates learning (Ungher and Sirian 1974).

Learning and Memory Facilitating Action of Certain Medhya Drugs

Based on ancient texts and recent scientific investigations done so far on potentialities of certain Medhya drugs of Ayurveda, there are following several claims that clarify the scope of such drugs as rich sources of medicinal agents facilitating learning and memory, apart from their other medicinal actions and uses in clinical practice.

Brahmi (B. monniera) also known as "Neer brahmi" is one of the most popular medhya drug of Indian Medicine. The whole plant of this herb is advocated as a nervine and mental tonic with its common usefulness as a remedy for the treatment of different mental and nervous disorders, besides its several other medicinal actions and uses in Ayurvedic system of medicine (Kirtikar and Basu 1935, Nadkarni 1956, Chopra et al. 1958, Satyavati et al. 1976, Khory & Katrak 1981, Asolkar et al. 1992). Recently, it has been indicated as a prominent

psychotropic and brain tonic predominantly acting on the cerebral part of the central nervous system. It is also claimed to be probably acting on the limbic cortex and hypothalamus, and involved in correcting abberations of emotions, mood, behaviour and personality of the individual. It is mentioned to be improving grasping power, logical and rational thinking, intellect, memory and speech, and probably helping to restore consciousness (Maroli and Javale 1982).

B. monniera has been observed influencing leaning and memory processes in different experimental and clinical conditions. Its dried whole plant powder, total alc. extract (50%) and the active glycosidal hersaponin component have been found improving motor and various other learning performance in rats (Prakash and Sirsi 1962, Singh & Sinha 1971, Sharma 1978, Singh and Dhawan 1978, 1982). It seems facilitating better consolidation and retention of memory in different learning experiments including "form discrimination and reversal learning" in experimental animals like rats (Singh and Sinha 1971, Singh and Dhawan 1978, 1982). Recently, some other glycosides of B. monniera viz. Bacosides A & B, have also been observed facilitating mental retention capacity following improvement in acquisition, consolidation and retention of learning in experimental rats in positive as well as negative reinforcement tests (Singh et al. 1988). In another study, the whole Brahmi extract has been demonstrated not only facilitating discrimination learning but also mitigating various stress induced changes in stressed rats (Agrawal et al. 1933a). Clinically, the alc. extract has been shown improving immediate memory span of the human adults (Singh 1977a). The powder form of this drug has also been observed improving memory component of the anxious patients by reducing lack of concentration and rate of mental fatigueness, besides inducing certain anxiolytic effect in the them (Singh and Singh 1980). In other studies, its importance in revitalising visuo-motor learning, immediate memory and related intellectual functions in educating children has been identified (Sharma 1978, Sharma et al. 1984, Abhang 1993). Recently, in certain studies on old age dementia & mental deficiency cases, this plant drug has revealed its scope as safer medicinal agent arresting further memory loss alongwith improving different memory span (Short term, long term and Reflex memory span) and overall mental performance of mild to moderate cases but without any notable effect in severe cases of mental deficiency (Agrawal et al. 1990, 1993b).

Following neurochemical mechanism of action, alc extract of this plant drug has been found increasing the brain level of total catecholamine and decreasing histamine contents, besides inducing no any marked change in 5-HT of the whole brain of normal rats (Singh et al. 1979b). Alongwith such effects, the same alc. extract is also seen increasing whole brain GABA (Day & Dutta 1966) apart from increasing the cortical ACh, catecholamine and histamine and decreasing the medullary catecholamine and histamine without changing its ACh content in normal rats (Singh et al. 1979b). Its total saponin component also follows the similar effect as total alcohol extract in inducing neurotransmitteral changes in the whole brain of normal rats with the exception of inducing a marked elevation of 5-HT and histamine in them (Singh et al. 1979a). However, its hersaponin component fraction appears different in action by depleting whole brain 5-HT as well as catecholamine of experimental rats (Malhotra et al. 1060). In stress condition, this fraction has been expressed inducing increase in whole brain catecholamine and histamine without influencing 5-HT to a notable extent in a study on experimental rats (Singh et al. 1979b). In a recent study, the total alc. extract of this drug has been observed inducing increase in whole brain ACh, different catecholamines like Ep, NEp

and DA, GABA & Glu. and depletion in Hist. without any notable change in 5-HT content of rats facing stress situation. However, the significant effect was seen only with the ACh, NE & DA and Hist. of brain neurotransmitters of such rats (Pathak 1990).

Mandukaparni (H. asiatica) is another herbal medhya drug, also known as "Brahmi-manduki" primarily mentioned as a nervine as well as brain tonic accelerating higher brain functions to improve memory and intellect, irrational voice, speech and thinking. It is indicated to be used in the treatment of mental retardation, speech disorders, insanity and epilepsy etc., besides its several other medicinal actions and uses in Indian system of Medicine (Kirtikar & Basu 1935, Nadkarni 1956, Chopra et al. 1958, Satyavati et al. 1976, Bhargava and Soni 1980, Khory & Katrak 1981, Maroli and Javale 1982, Kakkar 1990, Asolkar et al. 1992).

H. asiatica has been observed influencing the mental ability and intellectual processes in different clinical studies. Its long term application produces marked improvement in both general ability and behavioural pattern, and increases the power of concentration and attention following increase (7.6%) in IQ in mentally retarded children free from epilepsy and other neurological disorders (Appa Rao et al. 1973). Similarly, it also accentuated mental function of neurotic patients by improving immediate memory span following amelioration in lack of concentration and mental fatigue rate, besides applying its anxiolytic action in them (Mishra 1978, Singh et al. 1981). Included as one of the important constituent in an indigenous drug "Geriforte", it has been observed signifying its usefulness as an excellent nervine tonic (Bhargava and Soni 1980). In a study, its whole plant powder administered for long duration, improves both verbal and non-verbal performance covering visuo-motor perception, memory and other related intellectual functions of educable mentally retorted children (Sharma et al. 1984).

Following neurochemical mechanism of action, this plant drug in its brahmosidic (a glycosidic) component form has been indicated to be acting mainly on the cholinergic mechanism of brain function (Ramaswami et al. 1970). The higher doses of the total alc. extract appears increasing catecholamine and histamine apart from decreasing ACh of the whole brain of normal rats (Singh et al. 1983). In a recent study, the moderate doses of the total alc. extract of this drug has been found producing marked increase in the whole brain ACh, different catecholamines (EP, NE and DA), GABA & Glu. with a little decrease in 5-HT and marked decrease in Hist. of the rats facing stress situation (Pathak 1990).

Shankhapushpi (C. pluricaulis) is textually indicated as the best among all the medhya drugs which are considered to be promoting mental function in addition to the general rejuvenative effects in Indian Medicine. While describing the whole plant of this herb as one of the best brain tonic, it is claimed strengthening the brain, brightens the memory and intellect, and accentuates the treatment of loss of memory and certain associated mental disorders like insanity and epilepsy, besides its several other actions and uses (Kirtikar & Basu 1935, Nadkarni 1956, Satyavati et al. 1976, Khory & Latrak 1981).

C. pluriculis has been observed improving mental ability in certain clinical studies. It is found accelerating significant improvement in the rate of mental fatigueness and immediate memory span of different neurotic patients, besides increasing the work output for a given time, and reducing the mistake score in them alongwith inducing the depletion in their neurotic index (Singh and Mehta 1977).

Following neurochemical mechanism of action, the total alc. extract of this plant drug appears increasing catecholamine and ACh in the whole brain (Singh et al. 1977) much more

in its cortical region (Singh et al. 1979), but decreasing the same in its madullary region with a little effect on 5-HT in the whole brain (Singh et al. 1979b). Under the effect of same alc. extract, apart from alleviation in histamine (Singh et al. 1979b), elevation in GABA level is also seen in the whole brain of normal rats (Mudgal 1975). However, in other study under stress condition of rats, C. pluricaulis has been expressed inducing increase in catecholamine and 5-HT and decrease in ACh without influencing histamine to any notable extent. Moreover, in a recent study moderate dosage of the total alc. extract of this drug has been found elevating the brain ACh, NE, DA, GABA & Glu. and alleviating Ep, 5-HT and Hist. of rats facing stress situation. A highly marked effect appears only with Glu. and Hist. contents under the effect of this drug in such a study (Pathak 1990).

Jyotishmati (C. paniculatus) also claimed as one of the medhya drug is advocated as powerful nervine and brain tonic with the possibility of stimulating the intellect and sharpening the memory, besides its several other medicinal actions and uses in Indian Medicine. The seeds of this plant is used by Jain Sadhus to strengthen brain and to enhance the memory, and its oils are used by many great Pandits, Munshis, Court members and Collegeous to increase intelligence at some places in India (Kirtikar & Basu 1935, Nadkarni 1956, Chopra et al. 1958, Satyavati et al. 1976, Khory & Katrak 1981).

In experimentals trials, the seeds oil of C. paniculatus (administered to 3-15 days) shows significant hastening of the learning and improvement in memory processes of rats (Sharma 1978, Karanth et al. 1980, 1981). Clinically, this drug has been referred useful in the treatment of increasing memory and associated mental conditions of the patients (Hakim 1951, 1964). In a study, its oil form filled in capsules applied for 3 months exhibits improvement in visuo-motor functions, conventional memory and related intellectual functions of educable school children (Sharma 1978).

Following neurochemical mechanism of action, the total alc. extract of the seeds of this plant drug appears increasing ACh, different cat cholamine (like EP, NEp & DA), and Glu. and decreasing Hist with a little effect on 5-HT and GABA of the whole brain of rats facing stress situation. However, the highly marked effect is found only with histamine content of the brain of rats in such a study (Pathak 1990).

Vacha (A. calamus) also confined as a medhya drug is claimed as potent brain tonic, nervine sedative as well as stimulant, useful in the treatment of loss of memory, delirium, and associated several mental and personality disorders as well as nervous affection including paralysis of limbs, hysteria, epilepsy etc., apart from its other important actions and uses in Indian system of Medicine. traditionally, as per the meaning of its name "Vacha", this herb has been indicated to be endowed with its prominent action on speech centre in the brain to accelerate speech ability apart from being a general brain tonic (Nadkarni 1956, Chopra et al. 1958, Satyavati et al. 1976, Khory and Katrak 1981, Mavoli & Javale 1982).

It is mentioned to be exerting its prominent action on the central nervous system where it improves intellect, memory and speech by toning up, and preventing degeneration of central neurons. It corrects abnormal thoughts following its action on 'Brocas area' of the brain to facilitate clear and effective speech to help in better recall of information. Its powder when insufflated in the nose reflexly stimulates brain and leads to arousal in semiconscious or unconscious individuals to lead them better for learning and memory (Maroli and Javal 1982).

Following neurochemical mechanism of action, the extracted active asarone component of this lant drug exhibits no change in NEp content of the whole brain (Menon and Dandiya

1967) and no release of 5-HT from the brain of normal rats (Dandiya and Menon 1964a,b). In a recent study, the total alc. extract of rhizome of this plans drug appears inducing increase in brain ACh, 5-HT, and GABA and decrease in different catecholamines (EP, NEp & DA), Hist. and Glu. of rats facing stress situation. However, a marked effect is seen only with NEp and Glu. contents in such a study (Pathak 1990).

Jatamansi (N. jatamansi) maintained as medhya is widely claimed to be one of the important highly aromatic plant drug bearing a biphasic action on central nervous system indicating nerve stimulation and nerve sedation (sedation to spinal cord specifically). It is announced to be employed in the treatment of various nervous and mental disorders including vertigo, jainting, epilepsy, hysteria and convulsive affections besides its several other important medicinal actions and uses (Nadkarni 1956, Khory & Katrak 1981, Satyavati et al. 1987).

In clinical study, its one of the most valuable & extracted component namely 'Jatamansons' tested on hyperkinetic children with marked mental retardation, shows a little response on improvement in their behaviour. However, in the hyperkineting children with less marked mental retardation, jatamansone appears inducing certain improvement in their behaviour (Gupta and Virmani 1968).

Following neurochemical mechanism of action, this plant in its jatamansone component form has been observed producing a gradual reduction in brain 5-HT & NEp of the rabbit up to 8 and 24 hrs. from which it does not touch the normalcy even after 48 hrs. (Arora et al. 1962a). Further studies report that it leads to above reduction following an impairement of the biosynthesis and metabolism in 5-HT but without any effect on rats of its degradation (Arora et al. 1962b). In a recent study, the total alc. extract of its rootified rhizome appears producing increase in brain cate-cholamines (EP. NEp & DA), 5-HT, GABA & Glu., and decrease in brain ACh and Hist. of rats facing stress situation. However, a marked effect is found only with EP, 5-HT and ACh under the effect of this drug in such a study (Pathak 1990).

Conclusion

Despite textual claims and experimental as well as clinical investigations done so far on memory enhancing effects of certain herbal Medhya drugs, their multineurochemical mechanism of neurophysiological action further emphasises the scope of these natural substances as fruitful pharmacological agents. In fact, by virtue of bearing a more or less generalised action of increasing ACh/or catecholamines alongwith accentuating GABA: Glu. ratio and depleting Hist. and/or 5-HT contents in the brain of normal and/or stressed subjects, the total drug form of these agents appear to indicate the competency of medicinal formulation applicable in enhancing learning and memory. Moreover, amongst different chemical compounds known to be available in these natural agents, the isolated active ones exhibiting more or less similar action to their concerned total drug form further account the importance of these herbal drugs at wide national and international levels of acceptance. However, to find out the potentially important ones among the given list of Medhya drugs, a large scale screening of their crude and differently extracted or isolated forms, encorporating multidimensional toxocological, experimental and clinical evaluations are further needed.

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Vedana and Vedanahara Dravya

J.K. Ojha* and K.N. Dwivedi**

The Vedana

The word 'Vedana' is derived from the original dhatu 'Vid', meaning Jnana (sensation or perception).

It is of two types

(i) Sukhatmaka Vedana (Pleasant/agreeable sensation)

(ii) Dukhatmaka Vedana (Pleasant/Disagreeable/harmful sensation).

As said by Caraka

द्विविधः सुखदुःखानां वेदनानां .... (च. शा. १/१३३)

The Adhisthana (Site) of Vedana

It has been mentioned in sharira sthana of caraka samhita

वेदनानामधिष्ठानं मनो देहश्च सेन्द्रियः (च. शा. १/१३६)

The site for Vedana (perception or sensation) is

(i) The Manas (Mind) and (ii) The deha (Body) along with Indriyas (the sense organs).

The aim of Vedana sthapana Dravyas

Chakrapani, the famous ancient clinician and the well known commentator of caraka samhita says.

वेदनायां संभूतायां तां निहत्य शरीरं प्रकृतौ स्थापयतीति वेदनास्थापनम्

(चक्रपाणि दत्त)

The phenomenon of removing unpleasant sensation and restoring the nromal (stabilising pleasant) sensation is called vedanasthapana.

Drugs which fulfil this action are called vedanasthapana drugs.

Varieties of Vedana

On the basis of its intensity it may be of three types

(i) Tivra (Sevre/intense)

(ii) Madhya (Moderate) and

(iii) Mridu (Mild).

Vedana and Satwa

There is an inverse relationship between the vedana and the satwa :

- Prawara Satwa persons are less susceptible to pain.
- Madhyama Satwa persons are moderately susceptible to pain.
- Avara satwa persons are highly suceptible to pain.

Predominance of Dosha in Vedana

Vata is the main dosha in volved in Vedana. It is the main factor for generating and spreading the pain but for specific type of pain of specific region, related specific fraction of vayu is responsible e.g.

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* Professor and Dean, Faculty of Ayurveda

** Senior Lecturer, Department of Dravyaguna

Institute of Medical Sciences, Banaras Hindu University, Varanasi.

for general ←	Vedana	-	Vyana Vayu
	Shirah shula	-	Prana & Vyana Vayu
	Udara shula	-	samana & Apana Vayu
	Hridaya shula	-	Vyana and prana Vayu.

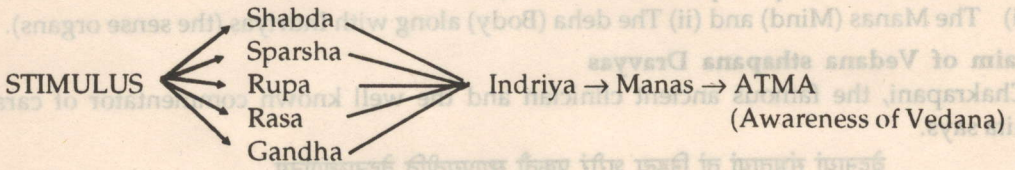
Synonyms of Vedana

Ruja, Pida, shula, Krichhra, Vyadhi, Atanka, Gada and Dukha are synonyms of Vedana. Specific meaning includes Vikara and roga also as synonyms of Vedana.

Mode of perception of painful sensation

आत्मेन्द्रियमनोऽर्थानां सन्निकर्षात् प्रवर्तते ।
सुखदुःखं ..... ।। (च. शा. १/१३८)
x x
इन्द्रियेणेन्द्रियार्थो हि समनस्केन गृह्यते ।
कल्प्यते मनसा तूर्ध्वं गुणतो दोषतोऽथवा ।।
जायते विषये तत्र ..... (च. शा. १/२२)

The pain (stimulus) is received by Indriyas and in presence of Manas and Atma it is perceived



Causes of Vedana

Various causes of Vedana may be grouped as
(i) Adhi Bhoutika
(ii) Adhyatmika &
(iii) Adhidaivika

Vedanasthapana Drugs in Ayurveda

The vedanasthapana drugs act through Dravya Prabhava, Guna Prabhava and Dravyaguna Prabhava. They may be classified as shown in Table.

Specific Drugs for specified type of pain (Vedana)

	Pain (Vedana)		Drugs
1.	Samanya Vedana	:	Haridra, Palandu, Rasona, Sala, Eranda, Guggulu etc.
2.	Aghata Janya Vedana	:	Dasamula, Ahifena, Kadamba, Guduci, Rasona, Sarja etc.
3.	Angamarda	:	Guduci, Rasona, Shala, Sarja etc.
4.	Sula		
	(a) Sirah sula	:	Mucukunda, Jatamansi, Tagara, Brahmi, Mandukaparni, Haritaki, Guduci, Asvagandha etc.
	(b) Udarasula	:	
	(i) Intestinal colic	:	Hingu, Ksara, Lavana, Datura, parasika Yavani, Suchi etc.
	(ii) Adhmana	:	Putiha, satapuspa, Misreya, yavani, Hingu, caturbija, saptosana, Abhaya etc.
	(iii) Uterine pain	:	Asoka, Daruharidra, Dasamula etc. (for non pregnant woman and in purpurel stage)

(iv) Mutrakrchhra (including renal colic)	:	Goksura, Varuna, Kulatha, Pasanabheda, trnapancamula etc,
(v) Pittasmari sula	:	Kokilaksa, Dhattura, suchi etc.
(vi) Parinama sula	:	Dhattura, suchi etc.
(c) Hrtsula and Parsvasula	:	Pushkaramula, Ahifena etc.
(d) Sandhisula	:	Nirgundi, Rasna, Guggulu, Dasamula, Kupilu etc.
(e) Snayasula	:	Dasamula, Kupilu etc.
(f) Karnasula	:	Paribhadra, Bilva etc.
(g) Netrasula	:	Udumbara, Triphala, Haridra etc.
(h) Dantasula	:	Bakula, Babbola, Nimba etc.
(5) Kanthasotha	:	Kanchanara, Vacha etc.
(6) Vranasotha and Vidradhi	:	Dasamula, Daruharidra, Eranda, Nirgundi, Asvagandha, Rasna, Kadamba, Eranda, Dhattura, Kalihari, Snuhi, Apamarga, haridra etc.

Line of Treatment

A clinician should always attmept to find out the probable cause of apin.

- If the cause is obvois, treat it to relieve pain e.g. pain due to an abscess can be relieved by approximate surgery and suitable drugs.
- If for some reasons the cause can not be treated immediately then immediate relief of pain can be obtained by treating the mechanism by which the pain is produced e.g.
  - Nitrites in angina pectoris.
  - Miotics in glaucoma.
  - Muscle relaxants in musculoskeletal disorders.
  - Chronic Peptic Ulcers - Antacids.
  - Functional dyspepsia - Carminatives.
  - Intestinal and biliary colic - Anticholinergic drugs like belladonna/Atropine etc.
- In inflammatory conditions e.g. Rheumatiod arthritis and gout - NSAIDS.
- Severe pain of sudden onset - morphine group (e.g. M.I., fractures etc.) of drugs.
- Chronic cancer pain (often due to direct tumour involvement such as bone - metastasis, nerve compression or infiltration) - Opioids, NSAIDs, Antidepressants (like amitryptiline) and phenothiazines.
- For symptomatic relief of dull aching and chronic type of pain - Non-opioid analgesics e.g. salicylates, newer NSAIDs.
- Headache
  - Migaine - Ergotamine, caffeine etc.
  - Headache due to anxiety, tension, fatigue, depression - Psychoactive drugs like diazepam, imipramine etc.
  - Simple headache. Aspirin.
- Dull aching localised musculoskeletal pain. Counter irritants (for local use).

Note : The phenomenon of pain is highly subjective and is associated with a psychic reaction involving fear, anxiety, apprehension and distress. In such circumstances judicious use of tranquillizers, antidepressants and placebo may produce beneficial effects.

Locally acting	Systemically acting		Acting through both by
For local use in the form of Lepa, Upanaha, abhyanga etc.	Peripherally acting by elimination of noxious stimuli or by interfering in pain pathway conduction	Centrally acting by raising pain threshold	Local and systemic action
Suchi	Drugs of	Suchi	Suchi
Sala	Dasamula	Tagara	Drugs of
Salaparni			Dasamula
Prisniparni	Sala	Katfala	Sala
Guggulu	Guggulu	Bilvamula	Guggulu
Katfala	Rasna		Katfala
Rasna			Rasna
Eranda	Eranda		Eranda
Gandha Prasarini			Palandu
Palandu	Palandu		Rasona
Rasona	Rasona		Devadara
Devadaru	Devadaru		
Medasaka			
Mucu Kunda			
Goraksa	Goraksa		Gorakha
Methika	Methika		Methika
Nirgundi	Nirgundi		Nirgundi
Daruharidra	Daruharidra		Daruharidra
Ahifena	Ahifena	Ahifena	Ahifena
Bhanga	Bhanga	Bhanga	Vatsanabha
Dhattura	Dhattura	Dhattura	Bhanga
Arka			Dhatture
Kadamba	Kadamba		Kadamba
Sarja			Kupilu
Kupilu	Kupilu	Kupilu	
Parasikayavani	Parasikayavani	Parasikayavani	Parasikayavani
Vatsanabha		Vatsanabha	
Hingu	Hingu	Jatamansi	Hingu
Kali hari			

Pharmacotherapy of Pain

- The intensity of pain suffered differs enormously with the personality, intelligence and culture of the individual.
- Emotional stress and anxiety adversely affect the pain response.
- Debility and fatigue also enhance the severity of pain.

- Pain often becomes worse during night when hurries of day life are absent and the patient has time to think over his/her ailment.
- Sever pain leads to both physical and psychological exhaustion.
- Therefore the choice of treatment would depend upon
  - The nature of painful disease.
  - The mechanism by which it produces pain.
  - Other associated complications and conditions.
  - The risk of toxicity invovled due to the drug selected for the treatment.

Guidelines for Contributors

Summary of Requirements

Type the manuscript double spaced, in the following sequence

Title page, abstract is keywords, text, acknowledgements, references, table (each table, complete with title and footnotes on a separate page) and legends for illustrations.

Illustrations must be good quality, unmainted glossy prints or Laser prints.

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Type the manuscript on white bond paper ISO A4 size paper. Type only on one side of the paper using double spacing throughout.

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The title page should carry the following

(a) the title of the article, whould be concise but informative,
(b) the preferred given name, initials and last name of each author.
(c) the name of departments and illustrations to which work should be attributed.
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Abstract and keywords

The second page should carry an abstract (of no more than 200 words). The abstract should state the purposes of study or investigation, basic procedures (selection of study subjects or laboratory animals), main findings observations and analytical methods. (Specific data and their statistical significance if possible) and principal conclusions. Below the abstract provide and identify as such 3 to 10 keywords or short phrases that will assist indexers in crossindixing, use terms from medical subject headings (mash) list of Index Medicus.

Text

The text of observational and experimental articles is usually but not necessarily divided into sections with the headings - Introduction, Methods, Observations and Results and Other type of articles, such as case reports, reviews and editorials, are likely to need other formats.

References

Number references consecutively is the order in which they are first mentioned in the text. Identify references in text, tables and legends for illustrations by Arabic numerals in parenthesis.

Submission of Manuscripts

All manuscripts should be addressed to 'The Chief Editor - Sangyaharan Shodh', Section of Sangyaharan, Operation Theatre (I.M.) S.S. Hospital, Institute of Medical Sciences, Banaras Hindu University, Varanasi - 221 005.

Effect of Brahmi (*B. monniera*) on Blood Sugar Level as Preanaesthetic Drug

K.K. Pandey

Abstract

In the texts of Ayurveda a large number of drugs have been mentioned as Medhya and being practiced for the treatment of psychosomatic and mental disorders i.e., unmad, apasmar etc. Many recent researches done so far have proved possibility of possessing anxiolytic and sedative properties in these drugs. Brahmi is one of these, which is a well known anxiolytic and sedative drug.

In the practice of anaesthesia many drugs either alone or in combination are being given before the actual commencement of anaesthesia as premedicant to reduce anxiety and apprehension and to produce sedation. But some of them either increase or decrease blood sugar level which plays an important role in the anaesthetic management. How far Brahmi is useful in this regard was studied as premedicant.

Key words

Medhya, Brahmi, Unmad, Apasmar, Psychosomatic, Sedative and Anxiolytic.

Recently some of the medhya drugs viz., Ashwagandha, Brahmi, Shankhpushpi, Jatamansi and Vacha were studied clinically as premedicants with fairly good results. Keeping in view of the above facts a search was made on one of the Medhya drug i.e., Brahmi (*B. monniera*) to evaluate its effect on blood sugar level when used as premedicant and was compared with the commonly used premedicant Phenergan (Promethazine HCl).

Materials and Methods

Forty (40) female patients with a narrow age and weight differences of ASA grade I and II posted for D&C (dilatation of Cx and uterine curretage) were randomly divided into two equal groups. Before giving premedicants, patients of both the groups were clinically examined and the base line parameters - Blood pressure, Pulse rate and Fasting blood sugar level was recorded. Patients of Group I (control) were premedicated with Tab. Phenergan 50 mg orally with an ounce of plane water 90 minutes before along with Inj., Atropine 0.6 mg I.M. 60 minutes before anaesthesia, whereas patients of Group II (Trial) were given Cap. Brahmi Ghansatva (water extract) 150 mg orally with an ounce of plane water 90 minutes before along with Inj. Atropine 0.6 mg I.M. 60 minutes before anaesthesia. The trial drug was prepared in Ayurvedic Pharmacy, Banaras Hindu University with standard methods and the dose was calculated as per texts. Each patient was pre oxygenated for 3-5 minutes and anaesthesia was given by Magill's open circuit with O_2:N_2O:Ether and position of patient was kept uniform i.e., lithotomy. Response of premedicants was evaluated under the following parameters :

Pulse rate, Blood Pressure, Desirable effects (Sedation, lack of apprehension and excitement), Dizziness, Emetic sequellae and Blood sugar level.

M.D. (Ay.), Ph.D. (Sangyaharan), Lecturer Stree Rog Sangyaharan, Institute of Medical Sciences, Banaras Hindu University, Varanasi - 221 005.

Observation and Result

Table 1a. Mean Age (years) and Weight (kg) in both the groups.

Group	Mean Age (yrs)	Mean Weight (kg)
I	30.30 ± 4.99	47.60 ± 6.58
II	29.35 ± 5.91	48.13 ± 4.76

Table 1b. Statistical comparison of Mean Age and Weight between the groups.

Mean compared	t value	p value	Remarks
Age	0.47	>0.05	N.S.
Weight	0.36	>0.05	N.S.

Table 1 a&b shows that mean age and weight in both the groups were insignificant and identical.

Table 2a. Mean Pulse Rate/minute before and after premedication in both the groups.

Group	Before premedication	After premedication
I	83.40 ± 9.07	98.30 ± 12.37
II	84.60 ± 9.08	90.20 ± 12.84

Table 2b. Comparison of Mean Pulse Rate/minute between group I and II before and after premedication

Mean compared	t value	p value	Remarks
Before premedication	0.548	> 0.05	N.S.
After premedication	0.031	> 0.05	N.S.

Table 2c. Comparison of Mean Pulse Rate/minute before and after premedication within the groups.

Mean compared	t value	p value	Remarks
Group I	5.334	<0.001	Highly sig.
Group II	4.936	<0.001	Highly sig.

It is obvious from the Table 2 that the mean pulse rate was identical before premedication in both the groups and which was also insignificant after premedication. But when mean pulse rate was compared within the groups during before and after premedication it was observed highly significant. However, the acceleration in the mean pulse rate was due to effect of injection Atropine.

Table 3a. Mean of Mean Blood Pressure (mmHg) before and after premedication in both the groups.

Group	Before premedication	After premedication
I	86.53 ± 7.00	86.00 ± 6.68
II	88.88 ± 7.57	88.67 ± 4.89

Table 3b. Comparison of Mean of M.B.P. (mmHg) between the groups before and after premedication.

Mean compared	t value	p value	Remarks
Before premedication	1.342	> 0.05	N.S.
After premedication	1.240	> 0.05	N.S.

Table 3c. Comparison of Mean of M.B.P. (mmHg) before and after premedication within the groups.

Mean compared	t value	p value	Remarks
Group I	0.823	> 0.05	N.S.
Group II	0.712	> 0.05	N.S.

Table 3 suggests that there was insignificant variation in the mean of mean blood pressure in both the groups before and after premedication.

Table 4. Incidence of some desirable and undesirable effects in both the groups before and after premedication.

Effects	Group I (%)	Group II (%)	x^2	P
Sedation	83.33	83.33	0.91	> 0.05
Lack of apprehension	83.33	90.00		> 0.05
Lack of excitement	90.00	100.0		> 0.05
Emetic sequellae	03.33	00.00		> 0.05
Dizziness	16.67	06.67		> 0.05

It is obvious from the Table 4 that the net desirable response of both the premedicants was identical. However the lack of apprehension and excitement was a little bit higher in group II patients but was insignificant. The emetic sequellae (nausea) was observed only in group I patients and dizziness percentage was observed more in group I which is well known with the Phenergan premedicant.

Regarding the change in the mean blood sugar level it is obvious from Table 5 that there was insignificant and identical variation in both the groups before and after premedication when compared within the groups as well between the groups.

Table 5a. Mean Blood Sugar Level (mg%) in both the groups before and after premedication.

Group	Before premedication	After premedication
I	89.4 ± 3.06	80.0 ± 3.41
II	84.2 ± 3.33	80.6 ± 3.52

Table 5b. Comparison of Mean Blood Sugar Level in both the groups before and after premedication

Mean compared	t value	p value	Remarks
Before premedication	1.04	> 0.05	N.S.
After premedication	1.26	> 0.05	N.S.

Table 5c. Comparison of Mean Blood Sugar Level within the groups before and after premedication.

Mean compared	t value	p value	Remarks
Group I	0.862	> 0.05	N.S.
Group II	0.731	> 0.05	N.S.

Conclusion

The indigenous drug Brahmi (*B. monniera*) used in the form of Ghansatva premedicant shows maximum desirable response in allaying of apprehension and excitement, producing good sedation and produces minimal undesirable response like nausea and dizziness as compared with commonly used premedicant Phenergan HCl. The drug Brahmi does not produce and hyperglycaemic or hypoglycaemic activity when used as premedicant.

This suggests that the drug may be used as premedicant in controlled cases of known diabetic patients safely. However this preliminary clinical trial needs further study on a large number of patients.

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THE NEWS

SANGYAHARAN DAY

- **Will be celebrated all over India**
- **Special Function will be held at Banaras Hindu University, Varanasi and Workshop will be Organised on this Occasion**

1. **10-14 March, 2000** **Honolulu (Hawaii)**
   - 74th Clinical & Scientific Congress of the International Anaesthesia Res. Soc.
   - *Contact :* IARS. Secretariat, 2 Summit Park Drive Suite 140, Cleveland, OH-44131-2553, U.S.A., Tel : 1216 641 1124, Fax : 1216 641 1127

2. **4-9 June, 2000** **Montreal (Canada)**
   - 12th World Congress of Anaesthesiologists
   - *Contact :* Events International Meeting Planners Inc, 759 Victoria SQUARE Suite 700 Montreal, Quebec H 2Y 2J7 Canada, Tel : +1514286 0855, Fax : +1514286 6066

3. **9-13 December, 2000** **New York Hilton (New York)**
   - 54th Postgraduate Assembly in Anaesthesiology
   - *Contact :* Kurt G Becker, Executive Director, New York State Society of Anaesthesiologists, Inc, 360 Lexington Avenue, Suite-1800, New York, NY10017, USA, Tel : +1216 8677140, Fax : 1212 8677153, Email : Kurt @hyssa.pga.org.

4. **5-7 February, 2000** **Rajgir Nalanda (India)**
   - Organised by Indian Medical Trust and Bihar Council on Science and Technology, Government of Bihar.
   - *Contact :* Dr. M.M. Gupta - Director Bhartiya Chikitsa Aevam Shodh Sansthan, Opp. Moinul Haque Stadium Rajendra Nagar, Patna - 800 016 (India), Tel : 91-0612-674157, Fax : 91-0612-666634/226497, Email : Client.Pat@email-com.

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