

Evaluation of Biopurification in Treatment Modalities of Diabetes Mellitus

Ila Tanna*· H.M. Chandola**

Abstract

The syndrome of Diabetes Mellitus is largely covered under the broad heading of Prameha. Ayurveda clearly mentioned role of unhealthy diet and unhealthy behavioral pattern in the pathophysiology of the disease Madhumeha. The diseases mainly related with the metabolic imbalance associated with the main dhatus like Rasa, Rakta, Mamsa, Meda causing unwanted accumulation of undigested matter i.e., Ama in the whole body with extra deranged quality Meda, so close resemblance between Madhumeha and Medoroga. The present study has been designed with the objectives to evaluate the role of shodhana therapy in the treatment modalities of DM. As already stated that the shodhana is needed for such patients and after shodhana, shaman therapy should be prescribed along with medohara drugs to have an effective control on this disease. For this purpose in Group 1; Madhumehahara yoga (Tejapatra, Mamejaka, Jambu seeds, Avartaki pushpa each in equal part with three bhavanas of Karavellaka swarasa), Vidangadi Lauha (Vidanga, Nagara, Yavakshara, Tikshna Lauha Bhasma, Yava, Amalaki each in equal part) (Ch. Su. 1/23) and virechana (Virechana Yoga: Aragvadha Majja-15 gm, Haritaki churna-15 gm, katuki churna-5 gm in 160 ml water & boiled to get 40 ml of decoction. To this decoction 20 ml of castor oil along with 250 mg of Ichchabhedi rasa was added.) were selected. These drugs therapy were tried on 16 patients and effect was assessed on various parameters. The patients treated with Madhumehahara yoga and Vidangadi Lauha had shown highly significant relief in fasting, 1st hour blood sugar level & significant relief in 2nd hour blood sugar level whereas virechana has shown significant decrease in fasting, 1st hour & 2nd hour blood sugar level. Along with above pathophysiology and involved factors, classics mentioned the role of Vata mainly in Madhumeha, so a genuine attempt is made to rule out the role of Vata in pathophysiology and in prevalence of the disease. For this purpose in Group 2; Pramehaghna vati: (Vijaya sara, Jambu beeja, Arjuna, Vitkhadira, Amalaki, Methibeeja, Tejapatra each in equal part) and Pramehaghna Basti: (kwatha dravyas: Vijaya sara, Jambu beeja, Arjuna, Vitkhadira ; kalka dravya: Amalaki, Methibeeja, Tejapatra; sneha: boiled & then cooled Tila taila; honey, rock salt) were selected. The patients treated with Pramehaghna ghanavati had shown highly significant reduction in fasting blood sugar level while Basti group had shown significant reduction. Both the subgroups had shown highly significant reduction in postprandial blood sugar level but percentage reduction was more in Basti group.

Key words: Prameha; Shodhana; Diabetes Mellitus; Basti; Virechana.

Introduction

The syndrome of Diabetes Mellitus is largely covered under the broad heading of Prameha. The three stages/types namely Kaphaja Prameha, Pittaja Prameha & Vataja Prameha are well comparable to the early, acute &

chronic Diabetes Mellitus. Sushruta has described two types: Sahaja Prameha & Apathya Nimmittaja Prameha.¹ The Sahaja Prameha has genetic susceptibility & caused due to *beeja dosha* - defect in the ovum & sperm & precipitated during childhood with vata dominance. This type is well comparable to type I diabetes - Insulin Dependent Diabetes Mellitus. The Charaka's "Jatah pramehi Madhumehino va"² is also similar type of disease. The Apathyanimmittaja Prameha is due to overeating & sedentary life style & precipitated in the later part of life. This type can be correlated with type II Diabetes Mellitus (NIDDM).

Author's Affiliation: *Ph.D. Scholar, Department of Roga Nidan Vikriti Vijnana, **Professor & Head - Kayachikitsa & Roga Nidana Vikriti Vijnana, Institute for Post Graduate Teaching and Research in Ayurveda, Gujarat Ayurved University, Jamnagar.

Reprint's request: Ila Tanna, Ph.D. Scholar, IPGT & RA, GAU, Jamnagar, E-mail: dr.ashka@yahoo.com

(Received on 18.02.2012, accepted on 29.03.2012)

Charaka, on the basis of body constitution has discussed two types: Sthula Pramehi (obese) & Krisha Pramehi (asthenic).³ It is also quite nearer to the concept of type II & type I Diabetes respectively. All the Acharyas have mentioned about the doshic predominance in three stages precipitating Kaphaja, Pittaja & Vataja Prameha. The first one has obese body constitution with disturbed carbohydrate fatty acid cycle leading to mild hyperglycemia. In these patients there is no true deficiency of insulin (relative deficiency) rather insulin antagonists are towards the higher side, not allowing insulin to act on blood glucose due to diminished insulin receptors in the target cells. The Pittaja Prameha seems to be mainly related to stress where due to krodha (anger), exposure to furnace & bright sun as described in the etiology of this type of Prameha, the body is at higher sympathetic tone leading to excessive release of catecholamine which is an established insulin antagonist with diabetogenic effect. These patients are stress prone with high catecholamine in their peripheral circulation with moderate hyperglycemia.

The Vataja Prameha is caused due to shoka (grief), udwega (anxiety) & other vata provoking factors leading to *dhatukshaya*. It leads to structural & functional abnormality in the β - cells of Islets of Langerhans of pancreas causing severe hyperglycemia with severe glycosuria. This is actual insulin dependent stage & in conformity with the statement of Sushruta; "Sarva eva Pramehastu Kalena apratikarinah, Madhumehatvamayanti tada asadhyabhavanti hi" [1]. That means, in due course of time & due to improper management, all types of prameha leads to Madhumeha which is terminal stage of disease & said to be incurable. It clearly shows that the whole disease Prameha is one & its main three types & twenty subtypes are nothing but different clinico-pathological presentation of the same disease (depending upon interaction between three doshas & ten dushyas).

It is crystal clear that all the patients of Diabetes are not similar, depending upon

dominancy of dosha, dushya, stage of disease & psychosomatic constitution of the patients. The same therapy &/or treatment modality may not show equal response in all the patients in similar fashion. Therefore while selecting the drug or the modality of treatment; it is necessary to take into consideration all these factors mentioned above. The obese patients who have more kapha & pitta in their body may require biopurification through vamana or virechana before administering the drug to get optimum therapeutic effect. Similarly, to counteract the provoked vata, basti is the line of treatment. Moreover, a new thought now a day is evolved for its mode of action with the hypothesis of independent Enteric Nervous System. The present study deals with evaluating the role of biopurification (shodhana) as treatment modality for the management of DM.

Material & Methods

GTT proved NIDDM patients fulfilling the diagnostic criteria of the disease attending the IPGT & RA Hospital, Jamnagar were selected & randomly divided in two main groups.

Virechana Group: This group was further divided in two sub groups.

i) A treatment package consisting of

(a) Vidangadi Lauha (Vidanga, Nagara, Yavakshara, Tikshna Lauha Bhasma, Yava, Amalaki each in equal part) (Ch. Su. 1/23) 3 gm thrice a day half an hour before meal with water.

(b) Madhumehahara Yoga (Tejapatra, Mamejaka, Jambu seeds, Avartaki pushpa each in equal part with three bhavanas of Karavellaka swarasa) 3 gm thrice a day half an hour before meal with water.

The duration of treatment was 2 months.

Virechana karma: In this group of patients prior to the administration of Vidangadi Lauha & Madhumehahara yoga Virechana karma was performed for the purpose of

shodhana to observe the augmented effect of the formulation.

(Virechana Yoga: Aragvadha Majja-15 gm, Haritaki churna-15 gm, katuki churna-5 gm in 160 ml water & boiled to get 40 ml of decoction. To this decoction 20 ml of castor oil along with 250 mg of Ichchabhedi rasa was added.

Basti Group: This group was also further divided in two sub groups.

- i) Pramehaghna vati: (Vijaya sara, Jambu beeja, Arjuna, Vitkhadira, Amalaki, Methibeeja, Tejapatra each in equal part) 2 gm thrice a day with luke warm water before meal for 45 days.
- ii) Pramehaghna Basti: (kwatha dravyas: Vijaya sara, Jambu beeja, Arjuna, Vitkhadira ; kalka dravya: Amalaki, Methibeeja, Tejapatra; sneha: boiled & then cooled Tila taila; honey, rock salt) for 16 days including Niruha & Anuvasana Basti (Kalabasti).

Observation & Results

Discussion

Both the sub groups under group 1; oral group & virechana group have shown highly significant relief on clinical parameters but percentage wise better relief is observed in virechana group. On GTT, oral group has shown highly significant relief in fasting, 1st hour blood sugar level & significant relief in 2nd hour blood sugar level whereas virechana has shown significant decrease in fasting, 1st hour & 2nd hour blood sugar level. On biochemical parameters both the subgroups have shown highly significant decrease in serum cholesterol, serum total lipid & blood urea. Analyzing the *overall effect of therapy*, it is crystal clear that in oral group 60% pts. were markedly improved & 40% pts. were improved whereas in virechana group 66.66% pts. were markedly improved & 33.33% pts.

Group 1: Virechana group¹ Effect on chief complaints

Symptoms	Oral group(VL+MMY) (n=10)					Virechana group (n=6)				
	Mean score		% relief	t	p	Mean score		% relief	t	p
	BT	AT				BT	AT			
Prabhuta mutrata										
Quantity (ml)	2550	1887	26	14.56	<0.001	2333.3	1633.4	29.99	10.30	<0.001
Frequency	8.2	5.3	35.36	7.25	<0.001	8.66	5.2	39.95	6.06	<0.001
Avila mutrata	1.4	0.3	78.57	7.85	<0.001	1.33	0.16	87.50	7.00	<0.001
Mutra madhurya	1.4	0.3	78.57	4.86	<0.001	1.66	0.33	80.12	6.66	<0.001
Bhrisha pipasa	1.2	0.4	66.66	8.33	<0.001	2.0	0.5	75.00	6.81	<0.001
Bahu ashanata	1.0	0.2	80.00	6.66	<0.001	1.66	0.16	80.00	9.00	<0.001

BT = Before Treatment; AT= After Treatment

were moderately improved. While evaluating the overall effect of both the subgroups, it was observed that when virechana was performed prior to administration to oral drugs (shaman drugs), the therapy provided better symptomatic relief in the patients in comparison to only oral group. But on objective criteria i.e., on blood sugar level Virechana

group could not show better reduction in comparison to oral group. Thus to come any definite conclusion clinical significance should be further supported by the improvement on biochemical parameters for which large sample study is required.

In group 2; highly significant relief has been observed in oral group whereas significant

Effect on Glucose Tolerance Test

Blood sugar (mg%)	Oral group(VL+MMY)					Virechana group				
	Mean		% relief	t	p	Mean		% relief	t	p
	BT	AT				BT	AT			
Fasting	199.2	125.2	37.14	6.05	<0.001	163.0	126.0	22.49	3.07	<0.05
1 st hour	279.6	180.2	35.35	5.53	<0.001	246.6	197.0	20.13	3.39	<0.05
2 nd hour	302.8	207.0	31.63	4.07	<0.01	303.6	232.3	26.94	5.45	<0.01

Effect on some Biochemical Parameters

Investigations (mg%)	Oral group(VL+MMY)					Virechana group				
	Mean		% relief	t	p	Mean		% relief	t	p
	BT	AT				BT	AT			
S.Cholesterol	198.95	185.63	6.69	7.46	<0.001	147.47	137.92	6.44	8.34	<0.001
S.Total Lipids	674.93	591.81	12.31	11.76	<0.001	661.55	573.78	13.33	9.74	<0.001
Blood urea	23.37	22.5	3.36	8.75	<0.001	28.00	26.30	0.06	7.43	<0.001

Overall Effect of Therapy

Grading	Oral group(VL+MMY)		Virechana group	
	No. of patients	Percentage	No. of patients	Percentage
Excellent response	00	00	00	00
Marked improvement	06	60	04	66.66
Moderate improvement	04	40	02	33.33
No improvement	00	00	00	00

Group 2: Basi group¹ Effect on chief complaints

Symptoms	Oral group (PGV) (n=15)					Basti group (n=8)				
	Mean score		% relief	t	p	Mean score		% relief	t	p
	BT	AT				BT	AT			
Prabhuta mutrata	2.1	1.1	47.6	6.02	<0.001	1.5	0.6	60	4.57	<0.01
Avila mutrata	1.3	0.5	47.6	8.09	<0.001	1.8	0.6	55.6	3.81	<0.05
Mutra madhurya	1.9	0.9	52.6	6.23	<0.001	1.3	0.4	69.2	4.57	<0.01
Bhrisha pipasa	1.6	0.7	56.3	6.18	<0.001	1.5	0.6	60	4.98	<0.01
Bahu ashanata	1.7	0.7	58.8	7.25	<0.001	1.8	0.6	66.7	4.98	<0.01

Effect on blood sugar level

Blood sugar (mg ⁰ %)	Oral group (PGV)					Basti group				
	Mean		% relief	t	p	Mean		% relief	t	p
	BT	AT				BT	AT			
FBS	219	172.2	21.4	4.9	<0.001	215.6	168.9	21.7	3.7	<0.01
PPBS	293.5	227.5	22.2	8.4	<0.001	306.9	214.4	30.1	8.7	<0.001

Effect on some Biochemical Parameters

Investigations (mg ⁰ %)	Oral group (PGV)					Basti group				
	Mean		% relief	t	p	Mean		% relief	t	p
	BT	AT				BT	AT			
S.Cholesterol	203.9	191.3	6.2	1.6	>0.05	207.6	189.8	8.3	2.5	<0.05
S.Triglycerides	267.9	135.3	49.5	2	>0.05	244.4	177	27.6	2.8	<0.05
S.Creatinine	1	1	10	1	>0.05	1.1	1	0.1	2	>0.05
Blood urea	27.7	23.1	16.6	4.7	<0.001	30.4	25.3	17	4	<0.01

Overall Effect of Therapy

Grading	Oral group (PGV) % relief	Basti group % relief
Marked improvement	73.3	75

result is observed in Basti group but percentage relief was more in Basti group. Oral group has shown highly significant reduction in fasting blood sugar level (21.4%) while Basti group showed significant reduction by 21.7%. Both the subgroups have shown highly significant reduction in postprandial blood sugar level with percentage reduction in Basti group. Significant reduction is observed in serum cholesterol, serum triglyceride and blood urea. In oral group highly significant reduction is observed in blood urea. In nut shell; marked improvement is observed (75%) in Basti group while 73.3% in oral group.

By observing above results it can be concluded that though Oral & Basti both groups have provided better results but Basti has an edge because it is prepared with certain Pramehaghna drugs. So it can said that because of the purification and Pramehaghna drugs absorption through intestine, better results were obtained. May be that the Basti alter the absorption of carbohydrate from the intestine.

The drugs selected for the trial mainly have Tikta, Kashaya, Katu rasa; Ushna veerya; Laghu Ruksha Guna; Katu Vipaka &

Kaphavatahara properties and each one is indicated in Prameha chikitsa. Thus Ushna veerya & Tikta rasa helps to normalize the function of Jatharagni and Dhatwagni. That in turn helps to form the Dhatus in proper proportion with Samyak qualities. Laghu Ruksha Guna helps to for the Shoshana of Bahu drava Shleshma and reduction of vitiated Meda kleda. Thus once these factor get normalized in the body they inturn make clear the path of vata which stops the depletion of vital Dhatus and restore normal physiology.

In Basti same drugs were used for the Niruha and Anuvasan preparation. Thus according to above qualities Basti mainly proven to be effective to eliminate the metabolic waste. It increases the Agni power and purifies every channel present in the body and also helps to normalize the function of Rasavaha, Medovaha, Mutravaha Srotasa. Basti drugs after absorption perform the Samprapti Vighatana, as they possess Pramehaghna quality. Anuvasana Basti due to kashayarasa pradhana drugs present in it, acts against Meda and Kapha while Sneha normalize the Vata. Thus Basti reduces the excess of morbid matter & purifies the channels

to normalize the function of Apana and Vyana to prove beneficial in Avaranjanya Madhumeha. Even it may alter the absorption of carbohydrate and fat from the intestine, ultimately helping in better control of blood sugar level.

Conclusion

The present study concludes that better symptomatic relief is observed in type II diabetic patients by administering Virechana prior to oral anti diabetic drugs but it needs large sample study for further support on biochemical laboratory parameters. Moreover; ant diabetic medication through rectal route (basti) has shown better reduction in blood sugar in comparison to oral administration of same drug formulation. Hence Basti therapy being best vata- shamaka has an edge over other route of administration. However; for a confirmative statement large sample study is suggested to establish the better therapeutic efficacy through biopurification procedures.

References

1. Sushruta, Sushruta samhita. Nidana sthana 11/3, edited by Vaidya Yadavji Trikamji Acharya. Varanasi: Chaukhambha Surbharati Prakashan; 2008.
2. Agnivesha. Charaka samhita, Chikitsa sthana 6/57, edited by Vaidya Yadavji Trikamji Acharya. Varanasi: Chaukhambha Surbharati Prakashan; 2008.
3. Agnivesha. Charaka samhita, Chikitsa sthana 6/15, edited by Vaidya Yadavji Trikamji Acharya. Varanasi: Chaukhambha Surbharati Prakashan; 2008.
4. Sushruta. Sushruta samhita, Nidana sthana 6/27, edited by Vaidya Yadavji Trikamji Acharya. Varanasi: Chaukhambha Surbharati Prakashan; 2008.
5. Balbir Singh, Gurdip Singh, SN Vyas, HM Chandola. The role of Virechana & Medohara drugs in the management of Madhumeha (Diabetes Mellitus); M.D. (Ayu) thesis; I.P.G.T. & R.A., Jamnagar, 1992.
6. Anand Pawar, SN Vyas, HM Chandola, B Ravishankar. A comparative study of the role of Basti therapy & Pramehaghna drugs in the management of Madhumeha (Diabetes Mellitus); M.D. (Ayu) thesis; I.P.G.T. & R.A., Jamnagar, 2003.