Research Article

CLINICAL STUDY OF ARJUNA (*Terminalia arjuna*) TWAK CHURNA ON MADHUMEHA

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Abstract

Madhumeha (Diabetes) is a common disorder prevailing in the society. It is a chronic illness that requires continuous medical care and patient self-management education to prevent acute complications and to reduce the risk of long-term complications. Today, India has primary position in the global diabetes epidemiology map as it is the home of nearly 32 million diabetics. This is the highest number in the world. Diabetes incurs microvascular and macrovascular complications, resulting in a high degree of morbidity and a 30% decrease in life expectancy. The present paper deals with study on etiopathogenesis of madhumeha and evaluates the efficacy of Arjuna twak churna (Bark powder). 40 patients were taken for this study. Significant result was found in symptoms viz. 64.19% in Prabhutamutrata, 66.66% in Trushnadhikya, 71.05% in Karapadadaha, 62.5% Mutraavilata, 75% in Kandu, 55.55% in Swedadhikya.

Key words: Madhumeha, Arjuna twak churna, Diabetes

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INTRODUCTION

Diabetes mellitus (DM) is a major cause of morbidity and mortality, as it affects almost every system of human body. It is a lifestyle disorder, which neither spared developing nor developed nations. Ayurveda consider DM as madhumeha, which is tridosha predominant disease. Madhumeha literally means urine having appearance as honey. Ayurvedic signs and symptoms of madhumeha signify the metabolic abnormality as well as urinary tract pathology. Madhumeha is commonly presented with prabhuta-avilamutrata (increased frequency-turbidity of urine).[1] Madhumeha has become a global health problem in spite of advances in modern science. Apathyaahara and vihar (Unwholesome diet and physical work) are the major risk factors for madhumeha.[2] In today's era, apathya in terms of over nutrition in the form of carbohydrates, processed food with high sugar,[3] heavy oily and fatty diet,[4] increased stressful living and luxurious life style leading to reduced physical activity[5] have been reported to influence the manifestation of diabetes in a population.

Arjuna (*Terminalia arjuna*) is extensively used in cardiac debility that's why it is known as heart tonic.[6][7][8][9] But in Charaka and Sushruta Samhitas there is no mentioning of its use for heart disease. In this text it is categorized as Pramehaghna (anti diabetic).[10][11][12] Subsequently this was endorsed by other Nighantu. Bhavamishra had indicated it for prameha. It is Kashaya, Katu, Sheeta with Laghu, deepana, shodhana properties. Because of its strengthening property it gives strength to dhatwagni.[13][14][15][16]

AIMS AND OBJECTIVES

- To study the etiopathogenesis of madhumeha.
- To evaluate efficacy of Arjuna twak churna in the management of madhumeha.

MATARIALS AND METHODS

Selection of patients

This research was carried out as a part of post-graduation. Patients were selected on the basis of signs and symptoms mentioned in the Samhita grantha. The 40 Patients of 31-70 yrs age group have been selected from the OPD of Dept of Kayachikitsa, Shri Ayurved Mahavidyalaya, Nagpur, Maharashtra.

Exclusion criteria

Insulin dependent, Juvenile and Gestational diabetic patients were excluded.

Dose : 3 g Arjuna twak churna twice daily.
Anupana: Koshnajala (warm water)
Duration : 45 days.

Preparation of the drug

A well identified Arjuna twak from central Vidarbha location is procured, powdered and filtered in #32 sieve mesh. The sieve powder is shelved in air tight container till use.

Criteria for assessment

Unchanged	: less than 25% relief in symptoms
Improved	: 25-49% relief in symptoms
Markedly improved	: 50-99% relief in symptoms
Complete remission	: 100% relief in symptoms

Paired 't' test was used for the evaluation of statistical significance of result obtained at the end of the study.

Assessment has been done on the basis of improvement in signs and symptoms and investigations. For the assessment of clinical feature scoring pattern has been adopted as mentioned in Table 1.

Table 1: Scoring pattern

No.	Grading	Score
1	**Prabhutamutrata:**	
	4-5 times a day & once at night.	0
	7-8 times a day & 2 times at night.	+
	9-11 times a day & 3-4 times at night.	++
	12-13 times a day & 4-5 times at night.	+++
2	**Trushnadhikya:**	
	Trushna 4-5 times in 24 hrs	0
	Trushna 6-7 times in 24 hrs	+
	Trushna 8-9 times in 24 hrs	++
	Trushna after every 2 hrs	+++
3	**Karapadadaha:**	
	Absence of karapada daha	0
	Presence of karapada daha irregularly	+
	Presence of karapada daha every day intermittently	++
	Presence of karapada daha all time everyday	+++
4	**Mutraavilata:**	
	Mutraavilata absent	0
	Mutraavilata present	+
5	**Kandu:**	
	Absence of kandu	0
	Presence of kandu irregularly	+
	Presence of kandu intermittently	++
	Presence of kandu all time everyday	+++
6	**Swedadhikya:**	
	Sweating after hard work	0
	Sweating after average work	+
	Sweating after some work	++
	Sweating at every time	+++

Laboratory investigation

- Blood sugar fasting and post meal
- Parallel urine sugar

OBSERVATION AND RESULT

Maximum number of patients were male 55% (Table 2), Hindu 85% (Table 3), in the age group of 51-60 years 37.5% (Table 4), middle class 70% (Table 5), married 100% (Table 6), occupation having job 40% (Table 7), Kaph-vataprakriti 42.5% (Table 8), guru, madhura bhojana 42.5% (Table 9), mandagni 40% (Table 10). The main complaints like Prabhutamutrata and Trushnadhikya100%, Karapadadaha in 70%, Mutraavilata in 40%, Kandu in 92.5% and swedadhikya in 95% were present in the patients.

After 45 days treatment, marked improvement were observed in symptoms i.e. 64.19%, t=4.7, p<0.001 in Prabhutmutrata. (66.66%), t=7.47, p<0.001 in Trushnadhikya, (71.05%), t=9.7, p<0.001 in Karapadadaha, (62.5%), t=45.43, p<0.001 in Mutraavilata. In Kandu (75%), t=5.34, p<0.001, in Swedadhikya (55.55%), t=4.3, p<0.001 (Table 11).

Significant result was found in fasting blood sugar t=2.48, p<0.05, and post meal blood sugar t=2.06, p<0.05. But insignificant result was found in fasting urine sugar level t=-0.081, post meal t=-4.52 (Table 12)

DISCUSSION

The disease Madhumeha defined in classics as the Kapha Vata predominant [17] is proved from the table of Prakruti assessment made in the study. The patients of Kapha Vata are noticed out of 40 patients as 77.5% (31), those who consumed more of Kapha developing food.

Even though all three Dosha are involved in the Madhumeha manifestation,[18] the Vata predominance is understood with constipation which ultimately leads to the loss of Agni and Krurakoshtha. In the study it is found that 53% of patients had constipation and 67.5% had the manda or vishamagni. Where in the manda or vishamaagni influence the Kapha production and Ama involvement in madhumeha. When the Nidana is observed in Madhumeha, 42% of patients took the guru, snigdha, madhurahara, which is the stipulated dietetic involvement in Madhumeha pathology.

Table 2: Sex wise Assessment

Sex	Patient	% age
Male	22	55%
Female	18	45%

Table 3: Religion wise Assessment

Religion	Patient	% age
Hindu	34	85%
Buddhist	3	7.5%
Muslim	2	5%
Khrishan	1	2.5

Table 4: Age wise Assessment

Age	Patient	% age
31-40	24	10.0%
41-50	14	35.0%
51-60	15	37.5%
61-70	7	17.5

Table 5: Economic status wise Assessment

Economic status	Patient	% age
Low class	4	10%
Middle class	28	70%
High class	8	20%

Table 6: Marital status wise Assessment

Marital status	Patient	% age
Married	40	100%
Unmarried	00	0%

Table 7: Occupation wise Assessment

Occupation	Patient	% age
Job	16	40.0%
Business	6	15.0%
Retired	7	17.5%
House wife	11	27.5

Table 8: Prakruti wise Assessment

Prakruti	Patient	% age
Vatapittaja	4	10.0%
Vatakaphaja	31	77.5%
Kaphapittaja	03	7.5%
Sannipataja	2	5%

Table 9: Nidansevan wise Assessment

Nidanseven	Patient	% age
Avyayam (lack of exercise)	11	27.5%
Madhura,Guru,Atimatrabhojan	17	42.5%
Divaswapa	9	22.5%
Heredity	3	7.5%

Table 10: Agni wise Assessment

Occupation	Patient	% age
Sama	2	5%
Vishama	11	27.5%
Manda	16	40%
Teekshna	11	27.5%

Table 11: Effect of Arjuna twak Churna on symptoms

Sr No	Symptom	Σd^2	±SEM	t	p
1.	Prabhutmutrata	7.36	±0.50	4.7	<0.001
2.	Trushnadhikya	5.6	±0.43	7.47	<0.001
3.	Karapadadaha	5.36	±0.43	9.7	<0.001
4.	Mutraavilata	6.41	±0.47	5.43	<0.001
5.	Kandu	8.62	±0.54	5.34	<0.001
6.	Swedadhikya	7.20	±0.49	4.3	<0.001

Table 12: Effect of Arjuna twak Churna on investigations

No	Investigation	Σd^2	±SEM	t	p
1	Fasting blood sugar	3809.12	±11.46	2.48	<0.05
2	Post meal blood sugar	18621.75	±25.34	2.06	<0.05
3	Urine sugar (fasting)	23321.5	±804.1	-0.081	-
4	Urine sugar (post meal)	2020.7	±8.347	-4.52	-

Further it is observed that due to unwholesome diet and regimen (apathyaaharavihara) kapha, mamsa, meda aggravated and causes the obstruction (margavarodha).

Arjuna with Kashayarasa[19][20][21] clears the channel as well as decreases the Kleda and katuvipaka[22] increases the digestive fire.

Thus it blows the jatharagni and regularizes the Mandagni which is the main cause of Madhumeha. Karapadadaha, trushnadhikya, and swedadhikya symptoms are cured by sheeta veerya[23][24][25] of Arjuna. Laghu and rukshaguna[26] clears the mala, kleda, from srotas and alleviates. Thus the Arjuna is capable of correcting the dhatu vitiation (saithilyata) and regulating the sugars in the blood. It is observed that the FBS mean difference to the baseline data is 61.71 mg/dl and the PPBS is 136.46 mg/dl. Hence it is safely concluded that the Arjuna has the hypoglycemic effect and can be used as a glycemic agent to pacify the Madhumeha vis-à-vis Diabetes mellitus.

CONCLUSION

In this clinical study the Madhumehaghna activity of Arjuna has been observed. On the basis of statistical analysis Arjuna bark powder has been given significant result in the symptoms of madhumeha.

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