



Research Article

“COMPARATIVE STUDY OF *MADHUMEHA* IN ALCOHOLIC & NON ALCOHOLIC PATIENTS W.S.R. TO BSL”

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ABSTRACT

Rapid urbanization has changed the life style and dietary habits producing several diseases. Among them *Madhumeha* (Diabetes mellitus) is a chronic metabolic disorder, burning and challenging problem form medical science with worldwide distribution.

Lifestyle diseases are our own creation. All these practices are termed as *Apathya*, as when practiced leads to the life style disease such as diabetes; obesity, hypertension etc. and these diseases in Ayurveda can be termed as *Apathyanimitaja*. The disease caused because of indulging in above said practices.

It is said that, the possibility of an Indian suffering from a lifestyle disease is four percent greater than people from other nationalities. Nowadays, not only are lifestyle disorders becoming more common, but they are also affecting younger population. Hence, the population at risk shifts from 40+ to may be 30+ or even younger.

For this, 120 male patients of age group 40 to 70 years were randomly selected from OPD and IPD of Late Kedari Redekar Ayurved medical College and Research centre Gadhinglaj, Kolhapur, Maharashtra and divided into two groups, Group A (60 Non alcoholic *Madhumehi* patients) and Group B (60 Alcoholic *Madhumehi* patients). Clinical and laboratorial signs and symptoms were observed before study and after 2 days of discontinuation of treatment. The study has proved that Alcoholism and Random Blood sugar level (BSL) is associated with *Madhumeha* where as Alcoholism and Urine sugar level (USL) is not associated with *Madhumeha*.

Keywords: *Madhumeha*, Diabetes mellitus, *apathyanimitaja*, alcohol, Urine sugar level (USL)

INTRODUCTION

Besides the miraculous achievement of modern medical science, humanity is passing through a horror of disease and drug phobia, particularly in developing countries like India, where poverty and illiteracy account for the man's ignorance towards the principles of health care.



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In modern medical science, symptomatology of *Madhumeha* is equivalent to the features of Diabetes mellitus. A sedentary lifestyle combined with an increase in the consumption of fatty food and alcohol is to blame for the cases of obesity, diabetes, hypertension etc. Doctors term these diseases as ‘affluent society diseases’, which are mainly caused due to reduced physical activity and consumption of fast food and alcohol.

Diabetes is known to mankind since long. It is described in brief in Vedas. It is counted among the five major diseases responsible for morbidity and mortality. In US alone every one in four patients attending the physician are of Diabetes Mellitus. Diabetes Mellitus is responsible for I.H.D., E.S.R.D., and non traumatic amputation of limbs. In spite of tremendous advancement of modern medicine i.e. oral hypoglycaemic agents and insulin, they are not free from serious side effects and are unable to prevent long term complication. On the basis of similar Symptomatology of *Prameha* it can be correlated with Type – 2 Diabetes Mellitus.

It is predicted that by 2030 diabetes mellitus may afflict up to 79.4 million individuals in India ^[1].

The side effects associated with conventional medicine are well known as recently being reflected by the serious cardio-vascular side effects of glitazone group of anti-diabetic drugs which are banned around the world. Not only this, most fatal side effect associated with sulphonylureas i.e. hypoglycaemia is still to be answered.

Acharya Sushruta further asserted that when all the types of *Prameha* ill treated or neglected get converted into *Madhumeha* ^[2].

“xÉuÉi LuÉ mÉëqÉâWûÉxiÉÑ MüÉSÉáIÉÉmÉëliÉMüËUhÉÉ] qÉkÉÑqÉâWûiuÉqÉÉrÉÉliÉ iÉSÉÁxÉÉkrÉÉ pÉuÉliÉ ìWû||” (xÉÑ.iiÉ.6/30)

In ayurvedic literature *Acharya Charaka* has mentioned *Madyapana* as one of the *hetu* for *Madhumeha* ^[3].

“aÉÑÂîxIÉakÉÉqsÉsÉuÉhÉÉlrÉliÉqÉÉÉÇ xÉqÉZlÉiÉÉqÉÇ| IÉuÉqÉÉÇ cÉ mÉÉIÉÇ cÉ liÉSiÉqÉÉxrÉÉxÉÑZÉÉliÉ cÉ||” (cÉ.xÉÑ.17/78)

Alcohol has been used in India for a very long time, and it is the most common abusive substance addiction of the present day population. Also the amount consumed and problems associated have been increased in recent years. Since most of the generation, especially young generation is getting provoked attracted to it due to present life style.

Alcohol can cause chronic inflammation of the pancreas (pancreatitis), which can impair its ability to secrete insulin and ultimately lead to diabetes.

If this turns out to be the main cause of *Madhumeha*, preventive measures can be adopted through education and counselling, as first line of treatment in *Prameha* mentioned by *Acharya Charaka* is *Nidana Parivarjanam* ^[4].

In the present study a total of 120 patients were registered for the trial and were distributed in two groups i.e. Group A and Group B. Of these 60 children in Group A and 60 children in Group B completed the course of treatment. The general observations of total 120 children are plotted in the clinical study. Maximum efforts had been taken to avoid

bias that may creep in this as it is a psychological research work.

In the present study 120 male patients of age group 40 to 70 years were randomly selected from OPD and IPD and divided into two groups, Group A (60 Non alcoholic *Madhumehi* patients) and Group B (60 Alcoholic *Madhumehi* patients). Laboratorial signs of BSL and UL were observed before study and after 2 days of discontinuation of treatment.

AIMS AND OBJECTIVES

Aim: To conduct the comparative study of *Madhumeha* in Alcoholic and Non-alcoholic patients w.s.r. to BSL.

Objectives:



1. To study *Madhumeha* from various classical texts of modern and ayurveda.
2. To study the role of alcohol as an etiological factor in *Madhumeha*.
3. To study the role of alcohol in BSL and USL

MATERIAL AND METHOD

The present study was conducted to observe Random Blood Sugar level and Urine Sugar Level *Madhumeha* in Alcoholic & Non Alcoholic patients in *Madhumehi* patients.

Total 120 male patients between 40 to 70 years age group excluding dropouts, suffering from salient features of *Madhumeha* (Diabetes mellitus) either attending the O.P.D. or admitted in the I.P.D. were randomly selected for this present study irrespective of age, caste, occupation, religion etc.

These patients were randomly divided into two groups; Group A (Non Alcoholic) and Group B (Alcoholic). Random blood sugar level and urine sugar level count study was conducted in diagnosed patients of *Madhumeha* on first day of clinical examination and after discontinuation of all type of medication of *Madhumeha* (Diabetes mellitus) for 2 days. For urine examination Urinary container was given. Prior, informed written consent was taken from patient whenever it is necessary. History & Clinical observation of all patients was taken thoroughly with the help of special case paper format. Clinical observations were noted according to case record format. Relation between laboratory investigations and clinical observations were evaluated.

This is the observational based study and no medication was given to any of the patients and hence in the course of study no bio-medical hazards were caused to the patients

Selection Criteria:

Inclusion criteria:

1. Age group 40-70 years.
2. Sex-Males.
3. Having Random Blood Sugar Level count below 400 mg/dl.
4. Diagnosed *Madhumeha* patient.

Exclusive criteria:

1. Patients with age group below 40 and above 70 years.
2. Female patients.
3. Patient taking insulin.
4. Having Random Blood Sugar Level count above 400 mg/dl.
5. Patients of Sahaja *Madhumeha* (IDDM), Juvenile Diabetes mellitus.
6. Patients complicated with any cardiac problems.
7. Patients suffering from anorectal diseases.
8. Diabetes mellitus due to other hormonal disturbances like Pheochromocytoma, Acromegaly, and Thyrotoxicoses etc.
9. Diabetes due to side effect of drugs :
 - Diuretics (Thiazide groups)
 - Steroids
10. Acute and chronic systemic infectious diseases such as renal diseases, liver disease, etc.

Withdrawal criteria-



Patients not in regular follow up and during the course of trial if any serious condition develops which requires urgent treatment such subjects were withdrawn and managed according to need.

Diagnostic criteria:

Diagnosis was made on the basis of-

1. Random Blood Sugar level

(On the same day of the clinical examination and after discontinuation of all type of medication of Madhumeha (Diabetes mellitus) for 2 days)

The known patient of Diabetes mellitus

Time and Duration of the Study

The duration of the study was 2 days

CRITERIA FOR ASSESSMENT

1. Random blood sugar level

Grade	Random blood Sugar Level (mg/dl)	On 1 st D of Ex	On 3 rd D of Ex
Grade 1	Less than 55		
Grade 2	55 to 80		
Grade 3	80 to 140		
Grade 4	140 to 200		
Grade 5	More than 200		

2. Urine Sugar Level

Grade	Colour pattern seen on Urine Test stripe	On 1 st D of Ex	On 3 rd D of Ex
Grade 1	Sky Blue		
Grade 2	Light Green		
Grade 3	Dark Green		
Grade 4	Brownish Green		
Grade 5	Brown		

RESULT

Observations:

1. Alcohol Consumption wise distribution-

TABLE NO.1- PERCENTAGE WISE DISTRIBUTION OF ALCOHOLIC PATIENTS

Alcohol Consumption	No. of Patients	Percentage
Mild	24	40.00%
Moderate	23	38.33%
Severe	13	21.66%



Total	60	100%
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In Group of Alcoholic – majority of i.e. 24 (40%) were mild amount of alcohol consuming patients, 23 (38.33%), were moderate amount of alcohol consuming patients and 13 (21.66%) were severe amount of alcohol consuming patients.

2. Random blood Sugar Level (mg/dl) wise distribution-

TABLE NO. 2 – RANDOM BLOOD SUGAR LEVEL (MG/DL) WISE DISTRIBUTION

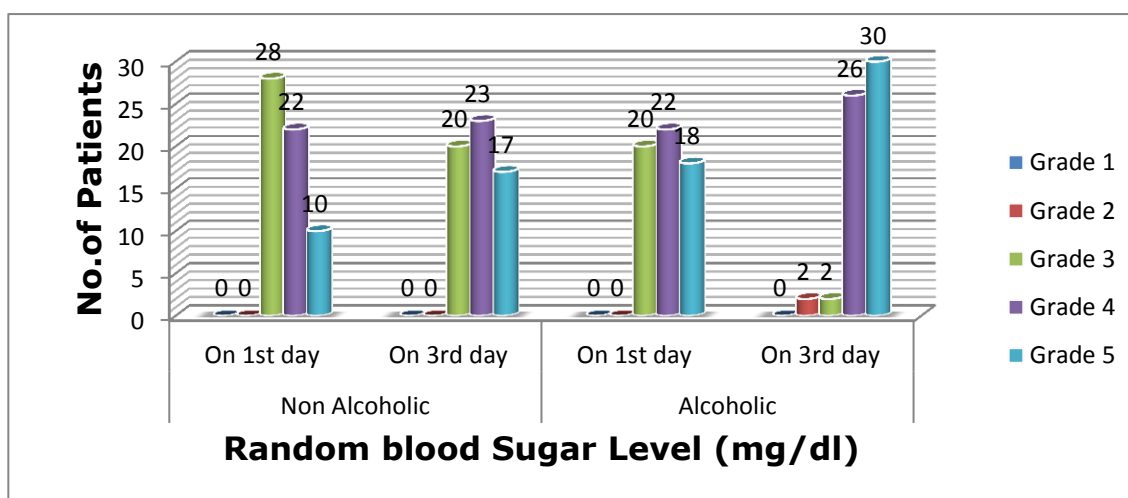
Random blood Sugar Level (mg/dl)	No. of Patients			
	Non Alcoholic		Alcoholic	
	On 1 st day	On 3 rd day	On 1 st day	On 3 rd day
Grade 1	0	0	0	0
Grade 2	0	0	0	2
Grade 3	28	20	20	2
Grade 4	22	23	22	26
Grade 5	10	17	18	30
Total	60	60	60	60

The above table shows that –

In Group of Non Alcoholic –On 1st day maximum 28 patients were in grade 3, 22 patients were in grade 4 and 10 patients were in grade 5, while on 3rd day 20 patients were in grade 3, 23 patients were in grade 4, 17 patients were in grade 5.

While in Group of Alcoholic – On 1st day 20 patients were in grade 3, 22 patients were in grade 4 and 18 patients were in grade 5, while on 3rd day 2 patients were in grade 1, 26 patients were in grade 4 and 30 patients were in grade 5.

Graph no. 1 Random Blood Sugar level



3. Colour pattern seen on Urine Test stripe wise distribution

TABLE NO. 3 – COLOUR PATTERN SEEN ON URINE TEST STRIPE WISE DISTRIBUTION



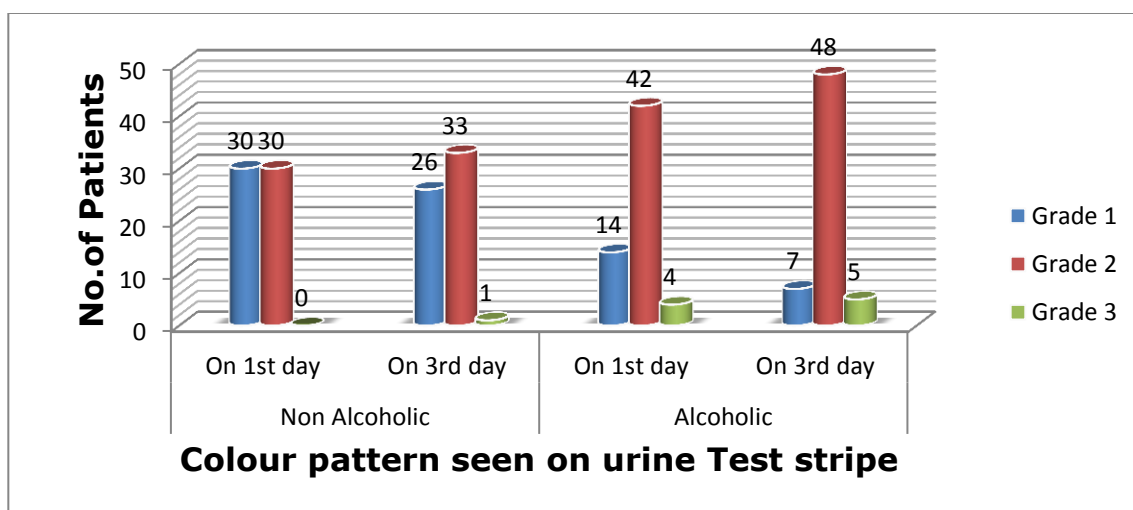
Colour pattern seen on Urine Test stripe	No. of Patients			
	Non Alcoholic		Alcoholic	
	On 1 st day	On 3 rd day	On 1 st day	On 3 rd day
Grade 1	30	26	14	7
Grade 2	30	33	42	48
Grade 3	0	1	4	5
Total	60	60	60	60

The above table shows that –

In Group of Non Alcoholic – On 1st day 30 patients were in grade 1 and 30 patients were in grade 2, while on 3rd day 26 patients were in grade 1, 33 patients were in grade 2 and only 1 patients is in grade 3.

While in Group of Alcoholic – On 1st day 14 patients were in grade 1, 42 patients were in grade 2 and 4 patients were in grade 3, while on 3rd day 7 patients were in grade 1, 48 patients were in grade 2 and 5 patients were in grade 3.

Graph no. 2 Colour pattern seen on urine test stripe



RESULT:

Alcoholism and Change in Gradation for Random Blood Sugar Level

Chi square test is applied to prove whether there is association between the Alcoholism and Change in Gradation for Random Blood Sugar Level.

1. Null hypothesis

There is no association between the Alcoholism and Change in Gradation for Random Blood Sugar Level.

2. Alternative hypothesis

There is an association between the Alcoholism and Change in Gradation for Random Blood Sugar Level.

TABLE NO.4: SHOWING STATISTICAL ANALYSIS OF RANDOM BLOOD SUGAR LEVEL



		Change in Gradation for Random Blood Sugar Level			Total	Chi Sqaure value
		Increased in gradation	Decreased in gradation	No change		
Alcoholism	Yes	30	4	26	60	14.08
	No	15	0	45	60	
Total		45	4	71	120	

Degrees of freedom (df) = (Column – 1) (Row – 1) = (3 – 1) (2 – 1) = 2

Chi square (X^2) tabulated value of df = 2 is 5.99 at $P < 0.05$ i.e. at 95 % level of significance.

Conclusion:

As the calculated chi square (X^2) value is higher than the tabulated (X^2) value, we should reject the null hypothesis and accept the alternative hypothesis. So the Alcoholism and Change in Gradation for Random Blood Sugar Level are associated or interdependent.

Alcoholism and Change in Gradation for Urine Sugar Level

Chi square test is applied to prove whether there is association between the Alcoholism and Change in Gradation for Urine Sugar Level.

1. Null hypothesis

There is no association between the Alcoholism and Change in Gradation for Urine Sugar Level.

2. Alternative hypothesis

There is an association between the Alcoholism and Change in Gradation for Urine Sugar Level.

TABLE NO.5: SHOWING STATISTICAL ANALYSIS OF URINE SUGAR LEVEL

		Change in Gradation for Urine Sugar Level		Total	Chi Sqaure value
		Increased in gradation	No change		
Alcoholism	Yes	8	52	60	0.77
	No	5	55	60	
Total		13	107	120	

Degrees of freedom (df) = (Column – 1) (Row – 1) = (2 – 1) (2 – 1) = 1

Chi square (X^2) tabulated value of df = 1 is 3.84 at $P < 0.05$ i.e. at 95 % level of significance

CONCLUSION

As the calculated chi square (X^2) value is lower than the tabulated (X^2) value, we should accept the null hypothesis and reject the alternative hypothesis. So the Alcoholism and Change in Gradation for Urine Sugar Level are not associated or dependent with each other.



So, the Alcoholism and Change in Gradation for Random Blood sugar level are associated or interdependent and Alcoholism and Change in Gradation for Urine sugar level are not associated or dependent.

DISCUSSION

1. BSL (R) (Blood sugar level Random)

In observational study it was observed that for BSL (R) increase in gradation (change in degree of lakshana) i.e. hyperglycaemic effect was observed in 30 and 15 patients for Alcoholic and non alcoholic groups respectively while, decrease in gradation (change in degree of lakshana) i.e hypoglycaemic effect was observed in 4 patient in Alcoholic groups only. Hypoglycemic effect was observed only in those patients who are consuming severe amount of alcohol.

As the calculated Chi square value (14.08) is higher than the tabulated Chi square value (3.84) for BSL (R) and Alcoholism, it is observed that the diversity of BSL (R) level was more in alcoholic diabetic patients than that of non alcoholic diabetic patients.

Modern view: In diabetes, insulin sensitivity is reduced, while insulin secretion may be increased, resulting in hyper-insulinemia.

The priming effect of alcohol enhanced insulin secretion in pancreatic β -cells might be caused by an early defense mechanism, which is used to compensate for alcohol inhibited basal insulin secretion.

As a result of β -cell dysfunction and inadequate insulin release, due to incomplete suppression of hepatic glucose production and decreased efficiency of liver and muscle glucose uptake results in, increase in level of BSL in diabetic patients. This may be the reason that alcoholic patients were observed for hyperglycaemic effect more significantly.

In Alcoholic group it was observed that patients consuming severe amount of alcohol turns to becomes hypoglycemic effect.

Alcoholic beverages may contain a lot of sugar and this causes a sudden increase in blood sugar levels. The body reacts by releasing insulin, a hormone that reduces blood sugar levels. A spike in insulin levels causes hypoglycemia. This may be the reason that severe amount of alcohol consumption leads to hypoglycaemic effect in present study.

2. USL

In observational study it was observed that for USL increase in gradation (change in degree of lakshana) was observed in 8 and 5 patients for Alcoholic and non alcoholic groups respectively

As the calculated Chi square value (0.77) is lower than the tabulated Chi square value (3.84) for USL and Alcoholism, it is observed that the there is no effect on intensity of USL (Urine sugar level) in alcoholic diabetic patients

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