

## A COMPARATIVE STUDY OF MAMEJJAKA GHANVATI AND TRIKATU GUTIKA IN THE MANAGEMENT OF MADHUMEHA (TYPE-2 DIABETES MELLITUS)

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<https://doi.org/10.46607/iamj08062020>

(Published online: June 2020)

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Article Received: 14/05/2020 - Peer Reviewed: 27/05/2020 - Accepted for Publication: 04/06/2020



### ABSTRACT

*Diabetes* is a disease which has devastating global effects from human, social and economic standpoints. According to modern science it can be divided in two types as viz. type-I IDDM and type-2 NIDDM. In medical profession it cannot be cure but some extent controlled, then gradually allopath, ant diabetic drugs are decrease patient's lifestyle by side effects of drugs. After some years diabetes patients converted into uncontrolled diabetes mellitus and manifestation other major systemic disease like as hypertension, hyperlipidemia, chronic kidney disease etc. According to *Acharya Charaka*, *Prameha* also included in "*Anushanginaam agray*"<sup>1</sup> but it can be controlled easily with better lifestyle and longevity. The main factors involved in the pathogenesis are *Vata*, *Pitta*, *Kapha*, *Meda*, *Kleda* and *Oja*<sup>2</sup>. Therefore, the treatment of this disease should be *Tridoshghna*, *Balya* and *Rasayana*<sup>3</sup>. *Trikatu gutika*<sup>4</sup> which was described in *Bhavprakash Samhita Madhyamakhanda* as Trial Group and *Mamejjaka ghanvati*<sup>5</sup> which was described in *Bhaisajya Samhita* as control group were selected for present study. After observing data percentage In *Trikatu gutika* 20% patients had moderate improvement, 60% patients had marked improvement, 20% had No improvement and no one had mild improvement & *Mamejjaka ghanvati*, 26.67% patients had moderate improvement, 73.33 % patients had marked improvement and no one had mild or no improvement.

**Keywords:** Diabetes Mellitus, *Madhumeha*, *Mamejjaka Ghanvati*, *Trikatu Gutika*.

## INTRODUCTION

Every person has right to live happy and healthy life. According to *Ayurveda* and W.H.O, the concept of healthy person is not restricted only to physical or body level but also on spiritual and mental level, so all these three must be in an equilibrium state in a healthy person. *Ayurveda* is an observational knowledge of ancient scientists and their contribution that expanded it into eight different branches of healing nature. In Indian way of living, *Ayurveda* starts from kitchen and *Ayurveda* is just not a method of medicine but it's a way of healthy living. Today the materialistic world is running after money. There is increase in stress and strain which is leading to various physical and psychological disorders and various diseases like hypertension, cardiac disease and most harmful diabetes mellitus. In *Ayurveda*, there are twenty forms of *Prameha*: four are due to *Vata*, six are resulting from *Pitta* and ten are caused by *Kapha*<sup>6</sup>. All forms if not treated, eventually develop into *Madhumeha*<sup>7</sup>. *Madhumeha* has been classified under the *Vatika* type of *Prameha*, the *vata* may be provoked either directly by its etiological *Avarana* by *Kapha* and *Pitta* to its path or by continuous depletion of *Dhatu*s<sup>8</sup>.

*Vagbhat* has classified the *Madhumeha* in two categories as *Dhatukshaya janya* and *Avarana janya Madhumeha*<sup>9</sup>. The factors which Provoke the *vata* directly causes *Apatarpan janya Madhumeha* while the factors which provoke the *Kapha* and *Pitta* causes *Santarpanjanya Madhumeha*. Diabetes Mellitus is a classical metabolic disorder of tissue and cellular level which can be co-related with *Dhatvagnimandhya*. According to the Modern science, two type of Diabetes mellitus are referred to as type 1 (insulin dependent) & type 2 (non-insulin dependent). In patients with D.M., the absence or insufficient production of insulin or impairment in insulin receptors causes hyperglycemia. It alters metabolism of carbohydrates, proteins and fat in the body. It is characterized by high level of blood glucose and subsequent excretions through urine.

**Aim and Objectives:** To assess the comparative efficacy of 'Mamejjaka ghanvati' and 'Trikatu gutika' in the management of *Madhumeha* (Type-2 Diabetes Mellitus).

### Materials and Methods:

**Literary:** Literature regarding *Madhumeha* described in *Ayurvedic* classical books, recent articles, journals, P.G. and Ph.D. thesis and Diabetes in Modern science will be analyzed.

**Clinical:** 15 Patients placed in each group randomly will be subjected to examination and history will be recorded in CRF (Clinical Record Form).

### Inclusion criteria:

Patients between age group of 20 to 60 years with signs and symptoms of *Madhumeha* as per *Samhitas* and Diabetes mellitus (type 2) according to modern medicine.

- Uncontrolled D.M. even after taking modern anti-diabetic drugs will be treated and their anti-diabetic drug will be continued with thesis drugs.
- Newly detected D.M. patients and those who have not yet started anti-diabetic drugs.
- Patients fulfilling the standard diagnostic criteria of W.H.O: Patients having fasting blood sugar level  $\geq 126$ mg/dl & Postprandial blood sugar level & Postprandial blood sugar level 200 mg/dl will be taken for study.

### Exclusion criteria:

- Age of patient: <20 and >60 years.
- Insulin dependent diabetes mellitus.
- Type 2 diabetes mellitus patients taking insulin.
- Patients having controlled blood sugar levels.
- FBS >300 and PP2BS >350 mg/dl.
- Patients having D.M. with any systemic diseases and complication
- Patient with Gestational-Diabetes, Diabetic Nephropathy, retinopathy and neuropathy, Carcinoma, cardiovascular disease etc. complicated cases will not be taken for study.

### Investigations

- Fasting Blood Sugar
- Post Prandial Sugar

**Criteria for assessment of overall effect of therapy:**

The assessment of overall effect of therapy was done by two steps:

- By observing clinical improvement in signs and

symptoms before and after treatment.

- By comparing the values of level of F.B.S and P.P.B.S before and after treatment.

**Table 1:** Assessment criteria for chief complaints with scoring pattern:

	Grade	Frequency /day
1. <i>Prabhuta Mutrata:</i>	0	3-5 times
	1	6-8
	2	9-11
	3	>11
2. <i>Aavila Mutrata</i>	0	Clear urine
	1	Faintly cloudy or hazy with slight turbidity
	2	Turbidity clearly present but newsprint can be read
	3	Newsprint easily not be seen
3. <i>Kara padatala Daha:</i>	0	No <i>Daha</i>
	1	<i>Kara-pada Daha</i> in continuous and occasional
	2	<i>Kara-pada Daha</i> moderate and daily activity is not hampered
	3	<i>Kara-pada Daha</i> continuous, severe and unbearable
4. <i>Kara-pada Suptata</i>	0	No <i>suptata</i>
	1	<i>Kara-pada Suptata</i> in continuous and occasional
	2	moderate and daily activity is not hampered
	3	<i>Kara-pada Suptata</i> continuous, severe and unbearable
5. <i>Galtalushosha:</i>	0	No <i>Shosha</i>
	1	Feeling of thirst on and off and can be managed by a glass of Water
	2	Feeling of thirst severe, can be managed by drinking sufficient amount of water
	3	Severe thirst remains even after drinking water
6. <i>Daurbalya:</i>	0	Can do routine work/exercise
	1	Can do moderate exercise/ routine work with hesitancy
	2	Can do mild exercise/ slight work with difficulty
	3	Can't do mild exercise/ slight work also
7. Nocturia:(Frequency at night)	0	0-1 times
	1	1-2 times
	2	3-4 times
	3	>4 times
8. Polyphagia ( <i>Kshudhadhikya</i> ) Quantity of meal	0	Normal
	1	Slight increased
	2	Increased
	3	Very much increased
9. Polydipsia ( <i>pipasadhikya</i> ):	0	4-6 times
	1	7-10times
	2	11-13 times
	3	>13 times

**Table 2:** Assessment criterion for associated complaints:

	Grade	Frequency /day	Routine activity
10. <i>Shithilangata:</i>	0	No feeling of lethargy	Normal
	1	Slight feeling of lethargy	Normal
	2	Increased feeling of lethargy	Disturbed
	3	Severe feeling of lethargy	Bed ridden patient
11. <i>Asyamadhurya:</i>	0	No sweetness in mouth	
	1	Mild sweetness in mouth	
	2	Moderate sweetness in mouth	
	3	Severe sweetness of mouth	
12. <i>Klama</i>	0	No <i>Klama</i>	
	1	Mild	
	2	Moderate	
	3	Severe	
13. <i>Shayyasanswapnasukhe rati-</i>	0	No such this feeling	
	1	Mild this feeling	
	2	Moderate this feeling	
	3	Severe this feeling	

**Table 3:** Assessment of relief in signs and symptoms- scoring pattern:

Assessment	Criteria for signs and symptoms
No improvement	(0-25%) relief in signs and symptoms
Mild improvement	(26-50%) relief in signs and symptoms
Moderate improvement	(51-75%) relief in signs and symptoms
Marked improvement	(76% -100%) relief in signs and symptoms

**Groups:** Total 30 patients were registered for the present study. They were randomly divided into two groups. And each group contains 15 patients.

**Drug, dosage and duration:**

**Mamejjaka ghanvati:**

- **Contains:** *Mamejjaka patra, Ativisha, Katuka, Pippli, Jala (64:1:1:1:256)*
- It is a yoga mentioned in *Bhaishjya Samhita* (Gov.of Gujarat) *Ghanvati* will be prepared from *Kwath* (decoction) of these drugs by using process of *Rasakriya Nirman Vidhi*.
- **Dose:** four tablets thrice per day (500mg/tab)
- **Anupana:** Lukewarm Water
- **Duration:** 8 weeks

**Trikatu gutika:**

- **Contains:** *Trikatu, Triphala, Gugglu, Gokshura (1:1:1:as per req.)*
- It will be prepared as the classical way of manufacturing of *Vati Kalpna* given in *Bhavprakasa*

**Samhita**

- **Dose:** four tablets thrice a day (500mg/tab)
- **Anupana:** Lukewarm water
- **Duration:** 8 weeks

**Assessment and statistical interpretation:**

**For subjective criteria:**

- Percentage of improvement in each parameter of each scale in both the groups is calculated.
- The Wilcoxon signed-rank test is applied to the statistical data for evaluating the difference in the B.T. & A.T. scores of subjective parameters.
- Fisher exact test is applied to the statistical data for evaluating the difference in the effects of two groups.

**For objective criteria:**

- Student's paired 't' test was applied to the following objective parameters.
- F.B.S.

- P.P.B.S
- Student's Paired 't' test applied to the statistical data for evaluating the difference in the B.T. & A.T. scores of Objective parameters.
- Student's unpaired 't' test is applied for evaluating the difference in the effects of two therapies Objective Parameter wise.
- The obtained results were interpreted as below
  - Insignificant:  $p > 0.05$
  - Significant:  $p < 0.05$
  - Highly Significant:  $p < 0.001$

### Observations and Results:

The analysis of the data of 30 patients of *Madhumeha* showed that 46.67% belonged to age group of 41-50 years, 60% of the patients were male and 40% of patients were female, 66.67% patients were Hindu, 46.67% patients were reported to be higher secondary educated, all 100% patients were married, 63.33% were from middle class, 83.88% were from Urban habitate, 60% were come appeared with 1-5 year chronicity, 66.67% were come with previous modern medication, 70% with no family history, 33.33% housewife, 70% patient were from vegetarian, 50% were having *Vata-Kapha prakruti*, *Rajas Prakruti* were 30%, 83.33% patients were addicted with tea, 40% patients were tensed, patient came with *nidana* as *Divasvapa* 66.67%, 70% *avayayama*, 73.33% *ratrijagarana*, 93.33% patients were with the habit of *Samashana*, 36.67% Patients were having *Mandagni*, 53.33% patients were having *Madhyam Koshtha*, 63.33% patients were having *Madhyama Abhyavaharana Shakti*, 46.67% patients were having *Avara Jarana-shakti*, *Medovaha Srotodusti* was found 83.3% patients, 83.33% patients were taking *Dadhi*, 90% Patients were taking milk products, 96.67% patients were often taking rice, 46.67% patients were having irregular bowel habit, 40% were constipated bowel

habit, 66.67% patients has found *irregular* Sleep. *Prabhut mutrata* 50%, *Avilmutrata* 36.36%, *karpadtaldaha* 68.57%, *Karpadsuptata* 61.54, *Galtalushosh* 55%, *Daurbalya* 72.22%, *Nocturia* 58.62%, *polydipsia* 72.72%, *Polyphagia* 72.72% were relieved in patients of Group - B. In Group - A patients relieved. 94.12% in *Prabhoota-mutrata*, 84.62% in *Avilmutrata*, 95.65% in *Karapadata-daha*, 90% in *Karapadasuptata* and also in *galtalushosh*, 85.71% in *Daurbalya*, 76% in *nocturia*, 87.50% in *polydipsia* while 77.78% relief in *polyphagia*. *Shithilangta* was 76.19%, *Asymadhurta* 87.50%, *klama* 80% and *Syyashana svapna sukhe rati* 68.42% were relieved in patients of Group - B. In Group A patients relieved *Shithilangta* was 90%, *Asymadhurta* 75%, *klama* 86.87% and *Syyashana svapna sukhe rati* 84.62%. In Group - A the mean score was 17.89 before treatment which was reduced to 3.22 after treatment with 82 % relief. It was statistically highly significant ( $P < 0.001$ ). The mean score in Group - B was 19.09 before treatment which was reduced to 7.79 after treatment with 59.18 % relief. It was statistically highly significant ( $P < 0.001$ ).

In Group -B 93.33% patients got no improvement, 6.67% patients got mild improvement in F.B.S., 0% patient got moderate or marked improvement. In other side Group A, No improvement in 53.33%, mild improvement in 40%, moderate improvement in 6.67% patients. This table shows that in Group - B, 73.33% patients got no improvement, 20% patients got mild improvement in P.P.B.S., 6.67% patient got moderate improvement. In other side Group A, no improvement and mild improvement in 46.67% patients, moderate improvement in 6.67% patients. [Table 5] Effect of therapy on F.B.S and P.P.B.S is better improvement in Group - A than Group - B.

**Table 4:** Overall Effect of Therapy On P.P.B.S

Results	Group-A		Group-B	
	No.	%	No.	%
No improvement (0-25%)	7	46.67	11	73.33
Mild improvement (26-50%)	7	46.67	3	20
Moderate improvement (51-75%)	1	6.67	1	6.67
Marked improvement (76-100%)	0	0	0	0

## DISCUSSION

**Mamejjak Ghana Vati:** Mamajjaka Ghana Vati contains Mamejjak, Ativisha, Kutaki and Pippali. Majority of the drugs are Kapha-pittahara. In its major part of ingredients are as Tikta-katu rasa. Most of the drugs have Katu Vipaka and Ushna Virya. Laghu and Ruksha guna are dominant. Therefore, the combination is Tridoshaghna but mainly act on Kapha and Pitta. Therefore, it could be more effective in Avaranjanya Madhumeha or in Kaphaja Prameha. Majority of Dravyas possess Agnideepana, Amapachana, Raktashadhaka, Lekhana properties. These Drugs also possess Medohara property. Majority of drugs are Yakrut- uttejaka and Raktashodhaka. Therefore, they may act on Raktavaha Srotasa and help in the appropriate nourishment of Mamsa, Meda & later Dhatu elements which are loses and vitiated in Madhumeha. The production of excessive and vitiated Kleda and Mutra is controlled by Samyak Pachana and deepana Karma. Mamejjak itself is very effective drug of Madhumeha due to its Tikta ruksha properties which are directly opposite to nidana of Prameha. According to Acharya Charaka, Tikta dravya are indicate and more beneficial to Madhumehi. And that Mamajjaka ghanvati's contains already tikta dravya also. So, it is more effective in Madhumeha. It is very useful in lowering the blood sugar level also.

**Trikatu Gutika:** According to Properties of Ingredients of Trikatu gutika, its acts as Deepana, Pachana, Amapachana, Rasayana, Balya, Medohara, Kapha-Vatashamaka, Kledanashaka, Bastishodhaka, Pramehaghna, Vayasthapana effects in Madhumehi. it acts on Agnimandhya which is the Leading cause of Madhumeha. All dravyas of Trikatu gutika are Katu, tikta, kasaya rasa Predominantly which opposite to Nidana of Prameha. Due to its Kapha vata shamaka

effect its act on Karpad suptata, Trishna, Due to its Balya properties, it acts on Daurbalyanubhuti. Fasting blood sugar is increased due to inadequate suppression of gluconeogenesis as like insulin deficiency and post-prandial blood glucose is increased due to reduced peripheral utilization of glucose as insulin resistance. In same manner, according to Ayurveda, Madhumeha manifest due to Agnimandhya i.e. Dhatvagnimandhya which leads to various type of Ajirna manifestation in the body and appears various type of signs and symptoms. So that ,when intake of food at evening ,but due to Agnimandhya, it does not digest properly & leads to increase Ama in the body which may leads to increase Fasting Blood sugar and same way improper pachana leads to vidagdhajirna which may leads to increase Post prandrial Blood sugar also. After understanding these classical concepts, Trikatu gutika may also decrease the FBS and PPBS also due to its deepana, pachana and Pramehaghna effect. It contains of Trikatu, Triphala, Gokshura, & Gugglu are also more effective in Prameha chikitsa. Triphala itself 'Kaphapittaghni Meha-kushthahara' also. Trikatu is the best dravya for Agnimandhya condition because of its Deepana Pachana Amapachana effects. Gokshura also Balya and Vatashamaka & Madhumeha itself Vatika type of Prameha. Gugglu acts as Medo-Anila-haranam properties its acts at the level of Medo dhatu which is the leading cause of Madhumeha Samprapti. Gugglu re-establish Medadhatu in proper forms and after that further dhatu as like Asthi and Majja will also get nourish. So Guggulu also acts as Vrushya which protect the Madhumehi from Upadrava of Prameha as Klaibya in later stage.

## CONCLUSION

It is experienced during the present study that when the modern medicine get stopped suddenly the sugar level shoot up very rapidly despite of continuation of *Ayurvedic* medicines, but when the modern medicine withdrawal gradually according to time duration of intake of patient's medication with *Ayurvedic* medicine, the better results obtain in all symptoms & also in FBS-PPBS. The research study has shown interesting results, however it was carried out in a smaller number of patients and short duration because of short study period. Therefore, it is recommended to carry out the study in large number of patients and with longer duration. Both the drugs are free from any hazardous side effect, which is a great benefit of *Ayurvedic* management.

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**Source of Support: Nil**

**Conflict of Interest: None Declared**

How to cite this URL: Vaidya Bharat Mungara & Vaidya Dilipkumar Kataria: A Comparative Study Of Mamejjaka Ghanvati And Trikatu Gutika In The Management Of Madhumeha (Type-2 Diabetes Mellitus). International Ayurvedic Medical Journal {online} 2020 {cited June, 2020} Available from: [http://www.iamj.in/posts/images/upload/3666\\_3672.pdf](http://www.iamj.in/posts/images/upload/3666_3672.pdf)