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RESEARCH ARTICLE

TO EVALUATE THE EFFECT OF VIRECHANA KARMA IN THE MANAGEMENT OF MADHUMEHA W.S.R. TO DIABETES MELLITUS

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ABSTRACT

Madhumeha has been described as maharoga in ayurvedic classics. It is one of the most alarming disease and possesses a special place in medical science due to its high prevalence in the society and increased incidence. In Ayurveda, *Madhumeha* has been described as one among one of the 20 types of Prameha and is a sub-type of VatikaPrameha. The factors which provoke Vata directly cause Apatarpanajanya *Madhumeha* and the factors which provoke Kapha and Pitta cause Santarpanajanya *Madhumeha*. In the former type the patients are usually asthenic can be correlated with Type I DM and in the latter type patients are obese and can be equated with Type II DM. Shodhana is the preferred choice for the elimination of Doshas, thus Virechana karma was selected as Shodhana procedure, which is specific for the elimination of vitiated Pitta Dosh¹ as well as Kapha Dosh². Even for VatavyadhiVirechana is a good treatment.³ The present study was an open trial, which was carried out at R. G. G. P. G. Ayurvedic Hospital, Paprola. The study was conducted in two groups on 10 patients in each group and results were compared. Patients who fulfilled the criteria of assessment of the trial were selected. In group1 patients were given *Triphala Ghrita* for snehpana as a purvakarma followed by *Virechana karma* as shodhana chikitsa and *Trayushnadi gutika* as a shamana yog for 30 days after *Virechana*. In group2 only *Trayushnadi gutika* was given as shamana yoga for 45 days. 10 Patients in age group between 25-70 years having clinical features of *Diabetes Mellitus* were taken in each group. After evaluating the total effect of therapies comparative result of Virechana and *Trayushnadi gutika* (combined therapy) and *Trayushnadi gutika* (shamana therapy) was seen on *Madhumeha*.

INTRODUCTION

Diabetes mellitus is a giant disease considered as one of the arch enemy of mankind due to its multisystem involvement, complex metabolic abnormalities and varied clinical presentations. In the Indian context, increasing urbanization, industrialization and changing life styles have contributed to the increasing prevalence of diabetes mellitus. Despite of the rapid advancement of modern medical science especially in understanding the disease, still there exists no permanent remedy for the management of diabetes mellitus. *Madhumeha* in *Ayurvedic* literature closely resembles to diabetes mellitus. It is a subtype of Vataja Prameha It has been clearly mentioned about *Madhumeha* that it is *Kashta Sadhya*⁴ and even *Asadhya*⁵. Vagbhatta has classified *Madhumeha* into two categories⁶ ie Dhatukshayajanya *Madhumeha* and Avaranajanya *Madhumeha*. To find an ideal therapy for the management of Diabetes mellitus, Shodhana therapy has to be followed by Shamana therapy. According to Ayurveda Samprapati Vighatana is the main basis for the management of the disease. In Avaranajanya *Madhumeha*, the vitiated Kapha and Pitta obstruct the normal path of Vata.

In the present study Virechana karma is selected as Shodhana procedure, which is specific for the elimination of vitiated Pitta Dosh¹ as well as Kapha Dosh². Even for Vatavyadhi Virechana is a good treatment³. So in the management of Santarpanajanya *Madhumeha*, the Shodhana therapy must be done followed by Shamana Chikitsa⁷ as excessively vitiated Doshas cannot be alleviated with Shamana Chikitsa only⁸. Therefore this study has been planned "To evaluate the effect of Virechana Karma in the management of *Madhumeha* w.s.r. to Diabetes Mellitus"

Aims and Objectives

1. To evaluate the effect of virechana karma in the management of *Madhumeha*.
2. To study the associated effects of trial drugs if any.

MATERIALS AND METHODS

Plan of the study:

Research work has been planned in the following way :-

- i. Conceptual study
- ii. Clinical study

Conceptual study

To explore the literature pertaining to Madhumeha and diabetes mellitus in different ayurvedic samhitas and modern literatures.

Clinical study

The present study has been carried out in two groups. Total of 10 patients were selected in each group.

Group I- In this group each patient was subjected for *Virechana karma* after *Snehapana* with *Triphala ghrta* followed by *Trayushnadi gutika* as shaman yoga.

Group II- In this group only *Trayushnadi gutika* was given as shamana for 45 days.

Group I

Group II

Shamana yoga -Trayushnadi gutika – 1 gm TDS with luke warm water for 45 days.

Procedures

Virechana: Snehapana was done with triphala ghrta in increasing dose as per kosta and agni of the patients till the appearance of samyaka snehana lakshana. On the completion of snehapana, sarwanga abhyanga and sarwanga svedana was done for next 3 consecutive days. On fourth day morning after sarwanga abhyanga and sarwanga svedana virechanakalpa was given. Assessment of shodhana was done in accordance with samyaka shodhan criteria described in the ayurvedic texts.

Selection of Patients

Total of 20 patients who fulfilled the inclusion criteria were selected and divided into two groups, 10 patients in each group from OPD/IPD of R.G.G.P.G. *Ayurvedic* Hospital, Paprola, Distt. Kangra (H.P.) 176115.

Inclusion Criteria

1. Patients willing to participate in the study.
2. Patients in the age group between 25-70 years.
3. Only uncomplicated cases of non-insulin dependent diabetes mellitus.
4. Patients with fasting blood sugar >126 mg/dl and <200 mg/dl

Exclusion Criteria

1. Patients unwilling to participate in the trial.
2. Patients presenting with complications like severe renal diseases, retinopathy ischemic heart disease, severe hypertension etc.
3. Insulin dependent diabetes mellitus.
4. Patients with fasting blood sugar >200 mg/dl
5. Patients associated with major medical diseases like cancer, concurrent infection like tuberculosis etc.

6. Hypersensitivity to the trial drug.
7. Any other patient considered not fit for trial.

Criteria for Diagnosis

The patients were diagnosed on the basis of following criteria:

1. **Subjective Criteria:** Classical signs and symptoms of *Madhumeha* mentioned in *Ayurvedic* texts as well as in modern literature.
2. **Objective Criteria:** Fasting blood glucose > 126 mg/dl and < 200 mg/dl

Laboratory Investigations

Following investigations were carried out in all the patients to confirm the diagnosis and to rule out other concomitant disease:-

1. Routine blood examination

Hb%, TLC, DLC, ESR,

2. Biochemistry

FBS, Post Prandial Blood Sugar
B. Urea, S. Creatinine
Lipid Profile
SGOT, SGPT

3. Urine
 Routine
Microscopic

Schedule of trial

Duration of trial-45 days in both groups.

Follow up - After every 15 days

Criteria for Assessment

The results were assessed in regards to the improvement in clinical signs and symptoms (on the basis of grading and scoring system) and over all improvement.

Clinical Assessment

The overall improvement which had been shown by the patients is relief of signs and symptoms according to the subjective and objective criteria.

Subjective criteria

Scoring system was adopted for the purpose of assessment. Grading was done according to the severity of various subjective parameters given below:

1. Prabhuta Mutrata (Polyuria)

Frequency/Day	Frequency/night	Volume	Score
3 – 4	–	< 2 Litre	0
5 – 7	1	2 - 2.5 Litre	1
8 – 10	2	2.5 - 3.5 Litre	2
> 10	3 or more	> 3.5 Litre	3

2. Pipasa adhikya (Polydipsia)

Frequency/Day	Frequency/night	Volume	Score
3 – 4	–	< 2 Litre	0
5 – 7	1	2 - 2.5 Litre	1
8 – 10	2	2.5 - 3.5 Litre	2
> 10	3 or more	> 3.5 Litre	3

3. Kshudha adhikya (Polyphagia)

Major Meals	Supplementary meals	Quantity (Chapati)	Score
3	0	3-4	0
3	1-2	4-6	1
3	2-3	6-8	2
3	>3	>8	3

4. Klama (Fatigue)

Score

No fatigability	0
Mild fatigability once or twice in whole day but patient is able to do routine work	1
Moderate fatigability more than twice in whole day which hampers routine work	2
Severe fatigability, felt throughout the day and patient is unable to do any work	3

5. Karapada Suptata (numbness)

Score

No Numbness	0
Mild numbness felt occasionally	1
Moderate numbness felt frequently	2
Severe numbness felt continuously	3

6. Karapada Daha

(Burning sensation in hands and feet)

Score

No burning	0
In the morning	1
In the night	2
Whole day and night	3

7. Pindiko Udveshtana

(Calf Muscle pain)

Pain

Score

No tenderness	No Pain	0
In the morning	Mild	1
Even on light touch	Moderate	2
Even during rest and light touch	Severe	3

8. Mukha Shosha (Dryness of mouth)

Score

No Dryness of mouth	0
Desire of taking water	1
Have to take sips to moisten mucosa	2
Crusting of oral mucosa due to dryness	3

9. Sandhi Shoola (Joint Pains)

Movement Routine Activity	Score
Normal Normal	0
Slight limitation Slightly affected	1
Moderate limitation Reduced	2
Severe limitation Reduced	3

Objective Criteria: To assess the effect of therapy on objective parameters Fasting Blood Sugar level was assessed before commencement and after the completion of therapy.

Criteria for assessing the total effect

Considering the overall improvement shown by the patients in signs and symptoms, the overall effect of the therapy has been assessed as below:

- ❖ Cured (100% relief in signs & symptoms)

- ❖ Markedly improved (75-99% relief in signs & symptoms)
- ❖ Moderately improved (51-74% relief in signs and symptoms)
- ❖ Mildly improved (25-50% relief in signs & symptoms)
- ❖ Not improved (<25% relief in signs & symptoms)

Statistical Analysis

Mean, Percentage relief, S.D, S.E, 't' and 'P' values were calculated. The information obtained on the basis of observations were analysed statistically. The results were interpreted at $P > 0.05$, $P < 0.05$ and $P < 0.001$ significance levels. The obtained results were interpreted as:

- $P > 0.05$ Insignificant
- $P < 0.05$ Significant
- $P < 0.001$ Highly significant

EFFECT OF THE THERAPY

Subjective Criteria

EFFECT OF THERAPY ON GROUP-I

1. Effect of Therapy On Prabhuta Mutrata (Polyuria)

The mean score of *Prabhuta Mutrata*, before treatment was 1.80 and after treatment it came down to 0.40 showing a relief of 77.77%. The result was highly significant statistically ($p < 0.001$).

2. Effect of Therapy on Pipasa adhikye (Polydipsia)

The mean score of *Pipasa*, before treatment was 1.40 which changed to 0.20 after treatment, showing a relief of 85.71% and the result was highly significant statistically ($p < 0.001$).

3. Effect of Therapy on Kshudha adhikye (Polyphagia)

The mean score for *Kshudha*, before treatment was 2.20 which declined to 1.40 after treatment, showing relief of 69.97% and the result was significant statistically ($p < 0.05$).

4. Effect of Therapy on Klama (fatigue)

The mean score for *klama* before trial was 1.333 which was reduced to 0.444 after the completion of trial, and the percentage relief was 66.69% which was highly significant statistically ($p < 0.001$).

5. Effect of Therapy on Karapada Suptata (Numbness)

The mean score for *Karpada Suptata*, before trial was 1.40 and after completion of trial it came down to 0.20, the percentage relief was 85.71% and was significant statistically ($p < 0.05$).

6. Effect of Therapy on Karapada Daha (Burning sensation in Hands and Feet)

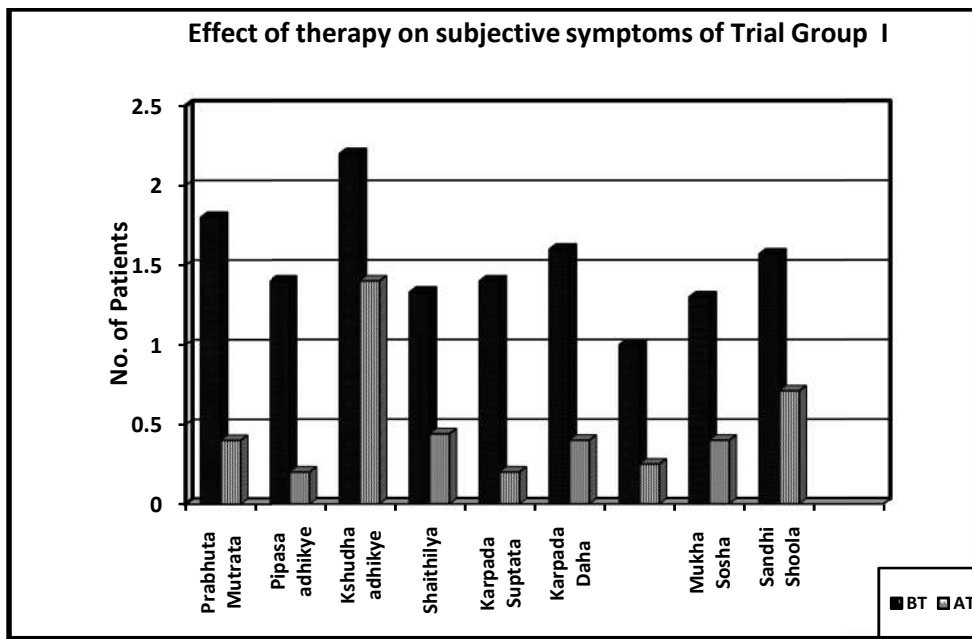
The mean score for *Karapada Daha* before treatment was 1.60 and after treatment the score came down to 0.40 with percentage relief of 75%. which was significant statistically ($p < 0.05$).

7. Effect of Therapy on Pindiko Udveshtana (Calf Muscle Pain)

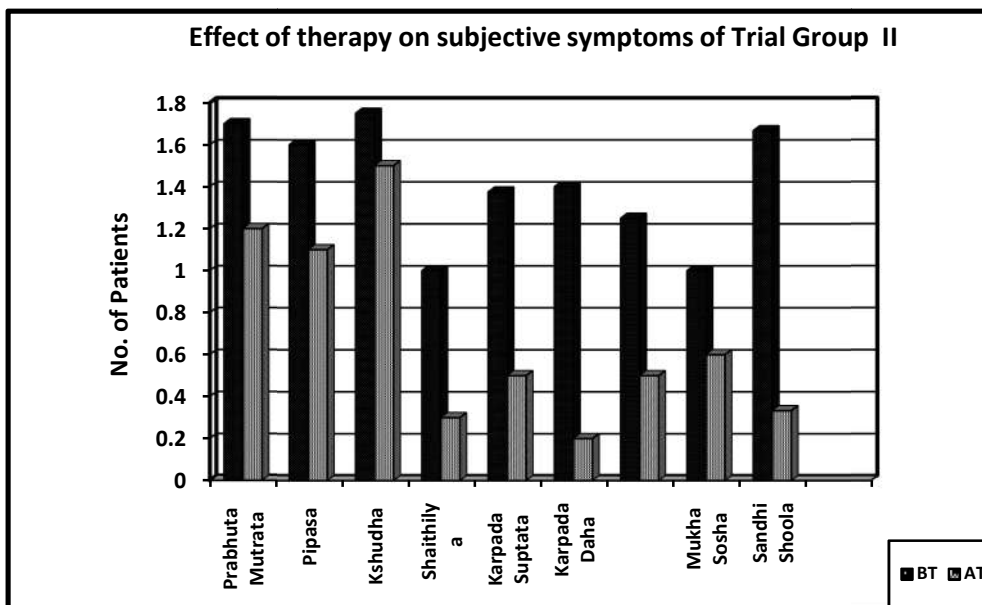
The mean score for *Pindiko Udveshtana* before treatment was 1.00 and after treatment came down to 0.25, the percentage relief was 75% and was insignificant statistically ($p > 0.05$).

8. Effect of Therapy on Mukha Sosha (Dryness of Mouth)

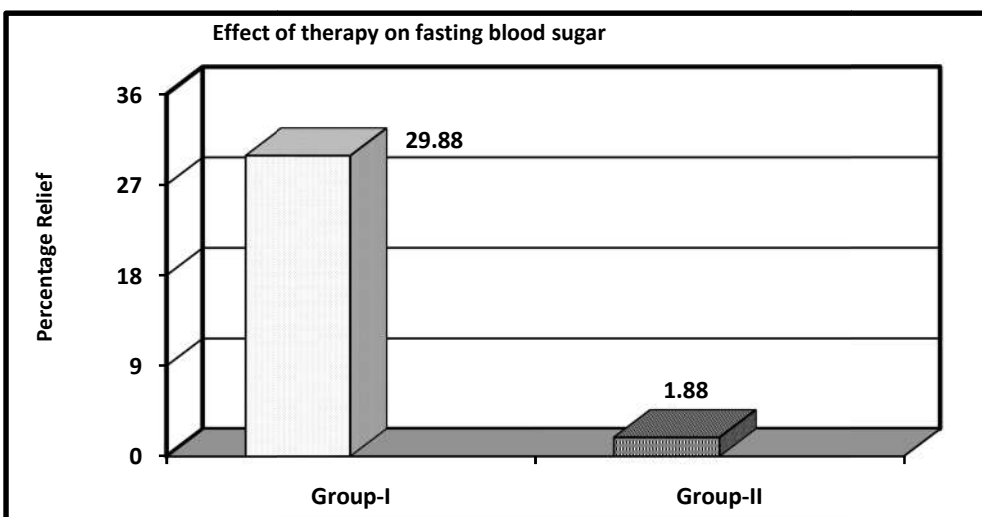
The mean score for *Mukha Sosha* before treatment was 1.30 and after treatment came down to 0.40, the percentage relief was 69.23% and was highly significant statistically ($p < 0.001$).



Bar Diagram 1. Effect of therapy on subjective symptoms of Trial Group I



Bar Diagram 2. Effect of therapy on subjective symptoms of Trial Group II



Bar Diagram 3. Effect of Therapy on Fasting Blood Sugar

9. Effect of Therapy on Sandhi Shoola (Joint Pains)

The mean score for *SandhiShoola*, before treatment was 1.571, and after treatment came down to 0.714, giving percentage relief of 54.55% and was highly significant statistically ($p < 0.001$).

EFFECT OF THERAPY ON GROUP-II

1. Effect of Therapy On Prabhuta Mutrata (Polyuria)

The mean score of *PrabhutaMutrata*, before treatment was 1.70 and after treatment it came down to 1.20 showing a percentage relief of 29.41%. The result was statistically significant ($p < 0.05$).

2. Effect of Therapy on Pipasa adhikye (Polydipsia)

The mean score of *Pipasa*, before treatment was 1.60 which changed to 1.10 after treatment, showing a percentage relief of 31.25% and the result was significant statistically ($p < 0.05$).

3. Effect of Therapy on Kshudha adhikye (Polyphagia)

The mean score for *Kshudha*, before treatment was 1.75 which reduced to 1.50 after treatment, showing percentage relief of 14.28 % and the result was insignificant statistically ($p > 0.05$).

4. Effect of Therapy on Klama (Fatigue)

The mean score for *klama* before trial was 1.00 which was reduced to 0.30 after the completion of trial, and the percentage relief was 70 % which was highly significant statistically ($p = 0.001$).

5. Effect of Therapy on Karapada Suptata (Numbness)

The mean score for *KarpadaSuptata*, before trial was 1.375 and after completion of trial it came down to 0.50, the percentage relief was 63.64% and was significant statistically ($p < 0.05$).

6. Effect of Therapy on Karapada Daha (Burning sensation in Hands and Feet)

The mean score for *Karpada Daha* before treatment was 1.40 and after treatment the score came down to 0.20 with percentage relief of 85.71%. which was significant statistically ($p < 0.05$).

7. Effect of Therapy on Pindiko Udveshtana (Calf Muscle Pain)

The mean score for *PindikoUdveshtana* before treatment was 1.250 and after treatment came down to 0.500, the percentage relief was 60% and result was insignificant statistically ($p > 0.05$).

8. Effect of Therapy on Mukha Sosha (Dryness of Mouth)

The mean score for *MukhaSosha* before treatment was 1.00 and after treatment came down to 0.60, the percentage relief was 0.516% and was significant statistically ($p < 0.05$).

9. Effect of Therapy on Sandhi Shoola (Joint Pains)

The mean score for *SandhiShoola*, before treatment was 1.667, and after treatment came down to 0.333, giving percentage relief of 80% and was highly significant statistically ($p = 0.001$).

OBJECTIVE CRITERIA

Effect of Therapy on fasting blood sugar in both groups

In Group-I, the mean fasting blood sugar before treatment was 190.10mg/dl and after treatment came down to 133.30mg/dl,

the percentage reduction was 29.88% which was insignificant statistically ($p > 0.05$).

In Group-II, the mean fasting blood sugar before treatment was 160mg/dl and after treatment it to 157.00mg/dl, the percentage relief was 1.88% which is insignificant statistically ($p > 0.05$).

Intergroup- comparison in subjective criteria

(Group- 1 Vs Group- 2)

In this part of the study, inter Group- comparison is done on the effect of therapies on assessment criteria's statistically along with relief difference in percentage between two Groups which is recorded and presented below.

1. **Prabhuta Mutrata:** 77.77% reduction was observed in polyuria in the patients of group-I, while in patients of group -II 29.41% reduction was observed, the intergroup difference was significant statistically ($p < 0.05$).
2. **Pipasa adhikye:** Reduction in polydipsia was 85.71% in group -I and 31.25% in group-II. The intergroup difference was significant statistically ($p < 0.05$).
3. **Kshudha adhikye:** Polyphagia was relieved by 36.36% in group -I whereas in group- II it was relieved by 14.28%. The intergroup difference was insignificant statistically ($p > 0.05$).
4. **Shaithilya:** Reduction in fatigue was 66.69% in group-I, whereas in group-II it was 70%. The intergroup difference was insignificant statistically ($p > 0.05$).
5. **Karapada Suptata:** Numbness was relieved by 85.71% in group-I, whereas in group -II it was relieved by 63.64%. The intergroup difference was insignificant statistically ($p > 0.05$).
6. **Karpada Daha:** Reduction in burning sensation of hands and feet in group -I was 75%, whereas relief in group -II was 85.71%. The intergroup difference was insignificant statistically ($p > 0.05$).
7. **Pindiko Udveshtana:** Calf muscle pain was relieved by 75% in group-I, whereas in group-II relief was 60%. The intergroup difference was insignificant statistically ($p > 0.05$).
8. **Mukha Sosha:** Relief in dryness of mouth in group -I was 69.23%, whereas relief in group -II was 40%. The intergroup difference was significant statistically ($p < 0.05$).
9. **Sandhi Shoola:** 54.55% relief was observed in joint pains in group -I, while in patients of group -II 85% relief was observed, but the intergroup difference was insignificant statistically ($p > 0.05$).

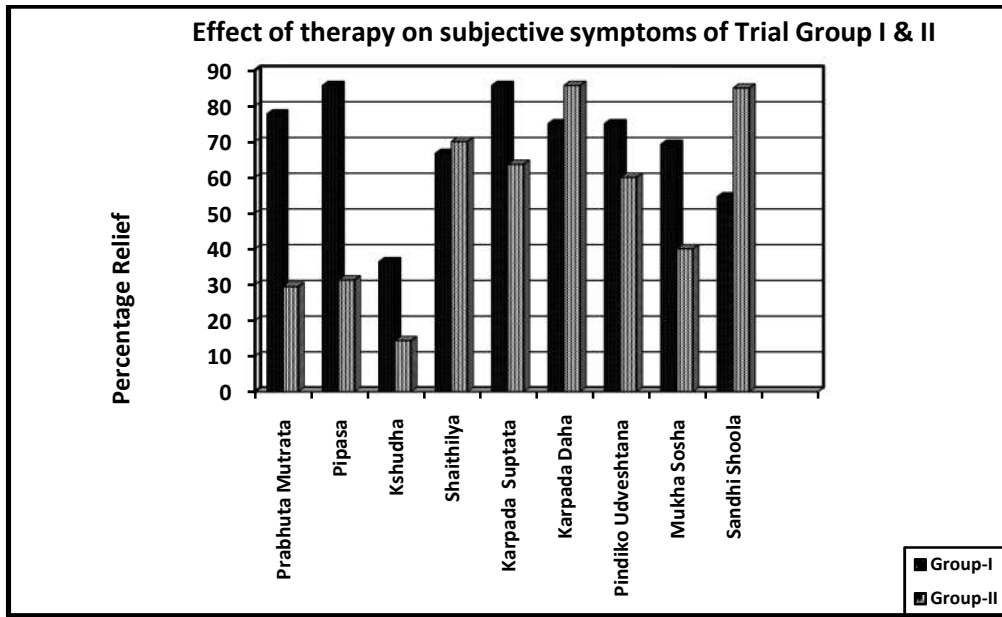
Intergroup- comparison in objective criteria

(Group- 1 Vs Group- 2)

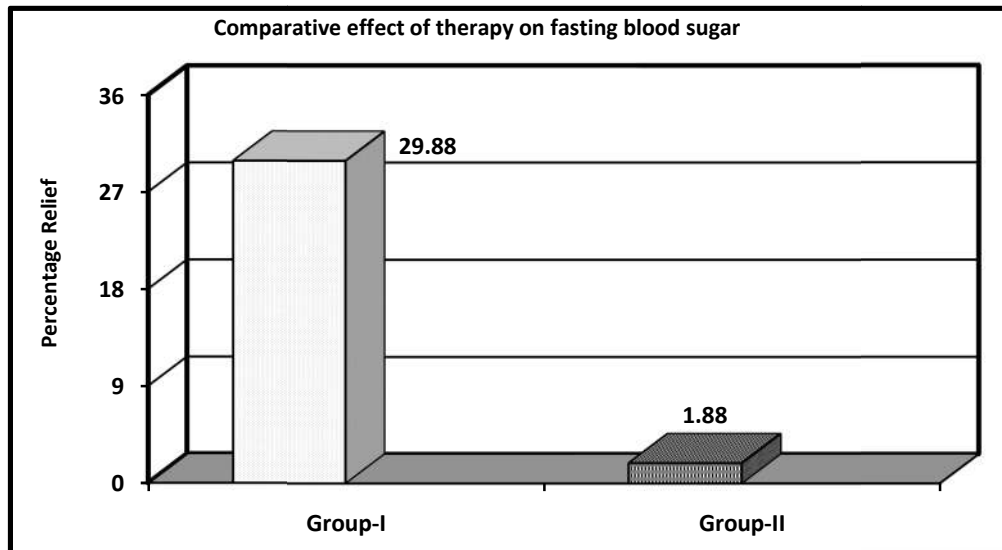
29.88% reduction in fasting blood sugar was observed in group-I, while in patients of group-II 1.88% reduction was observed, but the intergroup difference was insignificant statistically ($p > 0.05$).

OVERALL EFFECT OF THERAPY

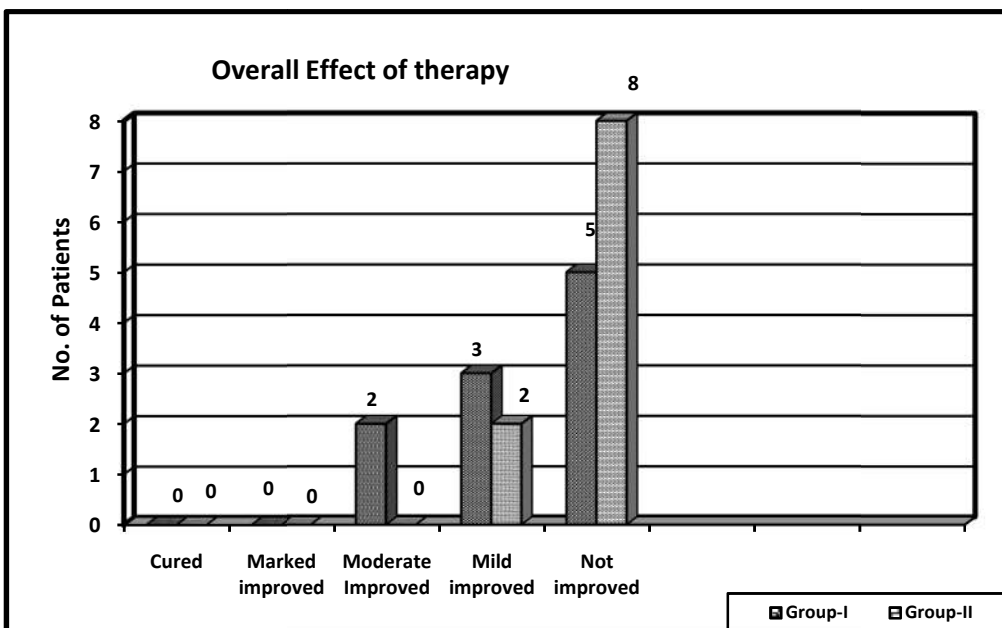
In Group I, five (50%) patients showed no improvement while three (30%) patient were mildly improved and two (20%) patients were moderately improved. In Group II patients, eight (80%) patients were not improved and two (20%) patient was mildly improved.



Bar Diagram 4. Effect of therapy on subjective symptoms of Trial Group I & II



Bar Diagram 5. Comparative effect of therapy on Fasting Blood Sugar



Bar Diagram 6. Overall Effect of Therapy

Overall effect of Therapy

Results	Group-1		Group-2	
	no. of patients	%	no. of patients	%
Cured	0	0%	0	0%
Marked improved	0	0%	0	0%
Moderate Improved	2	20%	0	0%
Mild Improved	3	30%	2	20%
No improvement	5	50%	8	80%

DISCUSSION

Effect of therapy on different symptoms and Fasting blood sugar in Group-I Patients

- In *Prabhuta Mutrata*, *Pipasa adhikye*, *Klama*, *Mukha Sosha* and *Sandhi Shoola* results were highly significant.
- In *Kshudha adhikye*, *Karpada Suptata* and *Karapada Daha* results were statistically significant.
- In *Pindiko Udveshtana* result was statistically insignificant.
- In *Fasting Blood Sugar* result was statistically insignificant.

Effect of therapy on different symptoms and Fasting Blood Sugar in Group-II Patients

- In *Klama*, *Sandhi Shoola* results were highly significant.
- In *Prabhuta Mutrata*, *Pipasa adhikye*, *Karpada Suptata*, *Karapada Daha*, and *Mukha Sosha* results were statistically significant.
- In *Kshudha adhikye* and *Pindiko Udveshtana* results were statistically insignificant.
- In *Fasting Blood Sugar* result was statistically insignificant.

Inter group comparison of different symptoms and Fasting Blood Sugar

- Inter group comparison shows that there was insignificant difference in the effect of therapy on *Kshudha adhikye*, *klama*, *Karpada Suptata*, *Karapada Daha*, *Pindiko Udveshtana*, *Sandhi Shoola*.
- Inter group comparison on *Prabhuta Mutrata*, *Pipasa adhikye*, *Mukha Sosha* shows that there was significant difference in the effect of therapy.
- *Prabhuta Mutrata* relieved due to kashaya rasa and laghu ruksha guna of drugs.
- *Pipasa adhikye* and *Mukha shosha* are relieved due to *Tikta rasa* and *Sheeta virya* of drugs.

Overall Effect of the Therapy

- In Group I, five patients showed no improvement while three patient were mildly improved and two patients were moderately improved.
- In Group II patients, 8 patients were not improved and two patients was mildly improved.
- No considerable change in haematological and biochemical investigations has been noted as a result of the therapy in both the groups.

Virechana Drugs possessing the Ushna, Tikshna, Sukshma, Vyavayi and Vikasi properties reach the Hridaya by virtue of its Virya and then following the Dhamani it pervades the whole body through large and small Srotasa. On virtue of its Agneya properties it causes Vishyanadana i.e. oozing of the Dosha and by its Tikshna Guna it is able to disintegrate the accumulated Dosha. Due to Vyavayi and Vikasi Guna the Virechana Drugs rapidly reach to the micro-channel (Anusrotasa) & then penetrate the microchannels with their Tikshna property and scrap off the morbid matter due to Khara property to bring them to Koshtha. Virechana Drugs carry out the Virechana due to their Prabhava (potency). These drugs which are having Jala and Prithvi Mahabhuta dominancy have a natural tendency to go downwards and thus they can help in induction of Virechana. Sushrut has mentioned Sara guna which has anulmana property. The waste products where so ever present in the body either in extra-cellular, intracellular or in plasma can be brought into intestine to maintain the homogeneity from where it can be eliminated out of body by the action of intestine, which is induced by Virechana drug. In Madhumeha Virechana subsides Pitta dominant lakshana like *Karapada Daha*, *Pipasa*, *Mukha Sosha* as Virechana karma is best for Pitta dosha. *Prabhuta Mutrata* and *Avil mutrata* both the symptoms are mainly due to Kapha and in Madhumeha sthana sanshraya of Kapha is in Basti Pradesh. In Avaranjanya samprapti vitiated Kapha and Pitta obstruct the path of Vata causing provocation.

Probable mode of action of trayushnadi gutika

- **On the basis of Rasa:** *Katu* and *Kashaya Rasa* are almost present in the main ingredients of drugs. *Katu* rasa helps in agni deepana and is aampachaka. *Kashaya* rasa is *pitta* and *kapha shamaka* therefore reduces symptoms of Madumeha like *Prabhuta Mutrata*, *Pipasa*, *Mukha Sosha*, *Karapada Daha*.
- **On the Basis of Guna:** *Laghu* and *Ruksha guna* are dominately present in ingredients. So, it can be said that *kapha* has *Guru* and *Snigdha guna* which are opposite to the *guna* present in the drugs ie laghu So, these help

PROBABLE MODE OF VIRECHANA

S. No.	Name of drug	Rasa	Guna	Veerya	Vipaka	Dosha Karma
1	Pippali	Katu	Laghu, Snigdha, Tikshana	Anushnasheeta	Madhur	Kaphavatashamak
2	Maricha	Katu	Laghu, Tikshana	Ushna	Katu	Vatakaphashamaka
3	Shunthi	Katu	Laghu, Snigdha	Ushna	Madhur	Kaphavatashamak
4	Haritaki	Panchrasa (kashaya)	Laghu, Ruksha	Ushna	Madhura	Tridoshaghana (Vatashamaka)
5	Amalaki	Panchrasa (amla)	Guru, Ruksha, Sheetata	Sheetata	Madhura	Tridoshaghana (Pitta shamaka)
6	Vibhitaka	Kashaya	Laghu, Ruksha	Ushna	Madhura	Tridoshaghana (Kapha shamaka)
7.	Shudh Guggulu	Tikta, Kashaya	Laghu, Ruksha, Tikshana, Saar	Ushna	Katu	Vatakaphashamaka
8.	Bhavana of Gokshura	Madhura	Guru, snigdha	Sheetata	Madhura	Vatapittashamaka

in removing the obstruction created by kapha and reduces symptoms like *Prabhuta Mutrata*

- **On the basis of Veerya:** *ushna veerya* is present in five contents which has *vata shamaka* properties therefore symptoms like *Karpada Suptata* and *Sandhi Shoola* are reduced by *Ushna veerya* which is vitiated due to *vata dosha*. Sheet *veerya* present in three contents are *pittashamaka* and reduces symptoms like *Pipasa*, *Mukha Sosha*, *Karapada Daha*.
- **On the basis of Vipaka:** *Madhura Vipaka* is present in six drugs where as two drugs are having *katu vipaka*. *Katu vipaka* is *aampachak* and increases the *Agni* and *Madhura vipaka* helps in *uttrotara Dhatu pushti* and ultimately *ojovridhi* and reduces symptoms like *Klama*.
- **On the basis of dosha Karma:** Conclusive *dosha karma* of drug is *Tridosha shamaka*.

Conclusion

Conclusions drawn from the present study are as follows:

1. Conceptual study reveals that major etiological factors, described in the classics are *kapha meda mutravardhaka*. *Vata* and *kapha* are chief culprits in *Madhumeha*. The observations found in the study are concordant to this description. Tendency towards sedentary life style and faulty dietary habits, leads to vitiation of *kapha* and *meda* leading to *Madhumeha*.
2. Type 2 diabetes is not diagnosed until complications appear and approximately one third of all people with diabetes may be undiagnosed. Diabetes is actually present for many years before the diagnosis is made. This may be the reason for the presence of chief and associated signs and symptoms in maximum number of patients.
3. *Virechan* though indicated for *pitta dosha*, eliminates *vata* by *pakwashayashuddhi* and *kapha* by its *tikshnaguna*. So it brings normalcy of *Tridosha*. Its acts at microcellular level and helps to maintain normal physiology of tissues. *Virechana* provides better results as far as *krurakoshtha* is concerned. Once the proper metabolism starts, it prevents *vataavarana & dhatu* depletion, normalizes the *agni* and makes *substratum* suitable for the drugs.
4. *Shodhanapurvaka Shaman* Chikitsa ie in Group I was more effective than *Shaman Chikitsa* without performing *Shodhanie* in Group II.
 - Mild improvement was found in 30% patients in group I and 20% patients in group II.
 - Moderate improvement was found in 20% patients in group I and no moderate improvement was there in group II.
 - No improvement was found in 50% patients in group I and 80% in group II
5. No side effects were observed during treatment.
6. *Pathya* is the foundation stone of the treatment as far as diabetes mellitus is concerned. *Pathya* should be emphasized when dealing with management aspect. *Pathya* provided significant results in the present study.
7. Though *Mahumeha* is described *asadhya*, in Ayurvedic Classics and irreversible if once sets in, the complication of diabetes mellitus and side effects of the modern oral hypoglycemic agents can be controlled or prevented with the best use of Ayurvedic formulations.

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