Clinical Research

A comparative clinical study of Nyagrodhadi Ghanavati and Virechana Karma in the management of Madhumeha

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Abstract

Diabetes mellitus is a common chronic metabolic disorder prevalent all over the world. Virechana is the Shodhana procedure that is specific for the elimination of vitiated Pitta and Kapha doshas. Thus, in the present study, the Virechana process has been selected prior to the administration of Shamana drug. Nyagrodhadi churna is mentioned in Chakradatta, which is modified into Ghana form for easy administration and dose maintenance. The present study was conducted in two groups: Group A, Nyagrodhadi Ghana vati (Shamana therapy) and Group B, Virechana and Nyagrodhadi Ghana vati (combined therapy). A total of 42 patients were registered for the present study, in which 34 patients completed the and eight patients were dropouts. After evaluating the total effect of the therapies, it was observed that the Virechana and Nyagrodhadi Ghanavati (combined therapy) provided better relief in the patients of Madhumeha in comparison with Nyagrodhadi Ghanavati (Shamana therapy) alone.

Key words: Madhumeha, Prameha, Diabetes mellitus, Shodhana, Virechana, Shamana

Introduction

Diabetes mellitus (DM) is defined as a disturbance of intermediary metabolism, manifesting as a chronic sustained hyperglycemia primarily due to either an absolute or relative lack of insulin. Type II DM appears to be prevalent at “epidemic” levels in many places. In areas of Australia, 7% of the people over 25 years old have DM (mostly type II). India has already become the “Diabetes Capital” of the world, with over 6 crore affected patients, which is a tip of iceberg. It has turned out to be the biggest “silent killer” today in the world. Type I DM is nearer to Dhatuapakarshanajanya Madhumeha while the type II DM resembles Avaranajanya Madhumeha. Acharya Sushruta has mentioned that in Madhumeha, the vitiated doshas remain in the lower part of the body owing to the inefficiency of various Dhamanis, i.e. vessels. Therefore, in the present study, Virechana process has been selected prior to the administration of Shamana drug. Nyagrodhadi churna is mentioned in Chakradatta and is modified into ghanvati for easy administration. In this formulation, many drugs like Vata, Udumber, Aswatha, Bijaka, Amru, Jambu, Arjuna, Dhava, Rattibhadra, Meshashringi, Chitrak, Karanja, Trivhala, Kutaaja, Bhattata, etc. are Madhumeahana, indicated by Acharyas. Amalaki is an immunomodulator along with anti-hyperglycemic effect, and thus may be used in autoimmune disease. Similar effects are found in Bhattata, Haritaki, Mulethi, Madhuka, Dhava, etc.

The drugs like Bijaka, Arjuna, Chitraka, Patola, Meshashringi, Amalaki, Haritaki, etc. have a hypolipidemic action.

Aims and Objectives

1. To study the etiopathogenesis of Madhumeha (DM).
2. To evaluate the role of Shamana drug in the management of Madhumeha.
3. To compare the effect of Shodhana and Shamana Chikitsa in the management of Madhumeha.

Materials and Methods

The present study included patients, various investigations, selected drug and diet.

Criteria for selection

Patients having classical signs and symptoms of Madhumeha (DM) were selected randomly from the OPD or admitted in the IPD of Kayachikitsa and Panchakarma department, I.P.G.T. and R.A., Jamnagar hospital, irrespective of age, sex, caste, religion, occupation, etc. The known cases of DM patients were also selected for the study after confirming by various investigations.

Exclusion criteria

1. Patients of Insulin dependant diabetes mellitus (IDDM).
2. Patients complicated with any cardiac problem.
3. Diabetes due to endocrinopathies, e.g. pheochromocytoma, acromegaly, Cushing’s syndrome, hyperthyroidism, etc.

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4. Drug- or chemical-induced DM, e.g. glucocorticoids, thyroid hormone, thiazides, phenytoin, etc.
5. Certain genetic syndromes sometimes associated with DM, e.g. Down’s syndrome, Klinefelter’s syndrome, Turner’s syndrome, etc.
6. Patients suffering from any severe systemic disease.

Investigations
Routine hematological examinations like Hb% (Haemoglobin), TLC/(Total Leucocyte count), DLC (Differential Leucocyte count), ESR (Erythrocyte sedimentation Rate), and PCV (Packed Cell Volume) were performed to rule out any other pathological condition.

Biochemical examinations
- Blood sugar: Fasting and post-prandial.
- Lipid profile: Serum cholesterol, serum triglyceride, serum S. HDL (High density lipoprotein), LDL (Low density lipoprotein), VLDL (Very low density lipoprotein)
- Serum insulin: Fasting
- Blood urea and serum creatinine: To assess the functional status of the kidney.

Urine: Routine and microscopic examination.

Stool: Routine and microscopic examination.

These investigations were carried out in all the patients before treatment and after completion of treatment.

Plan of study
The selected patients were categorized randomly into the following two groups:

1) **Nyagrodhadi Ghanavati (Shamana Yoga) group:** Twenty-one patients of Madhumeha were included in this group and were given Nyagrodhadi Ghanavati at a dose of two vati thrice daily with lukewarm water before taking meals for a duration of 30 days.

2) **Virechana and Nyagrodhadi Ghanavati (combined therapy) group:** Twenty-one patients of Madhumeha were registered in this group. Before selecting the patients for Virechana, they were examined for their general condition as well as to determine whether there was any disorder in which Virechana therapy was contraindicated. In this group, firstly, Virechana was given and, after that, Nyagrodhadi Ghanavati was given with the same schedule as in the Shamana therapy group.

Criteria for assessment
After completion of the treatment, the results were assessed by adopting the following criteria:
- Improvement in signs and symptoms of disease on the basis of the symptoms score.
- Fasting blood Sugar (F.B.S.) and Post prandial blood sugar (PPB.S.) levels.
- Serum cholesterol.
- Urine sugar.

Assessment of the overall effect of therapy
| Control of the disease | 100% relief |
|------------------------|-------------|
| Marked improvement     | ≥75% relief  |
| Moderate improvement   | ≥50% up to 74% relief |
| Mild improvement       | ≥25% up to 49% relief |
| No improvement         | ≤25% relief  |

**Table 1: Status of patients**

| Groups                  | No. of patients | Total | Percentage |
|-------------------------|-----------------|-------|------------|
| Shamana group           | 21              | 21    | 100        |
| Combined group          | 21              | 42    |            |
| Total registered        | 42              | 100   |            |
| Completed               | 18              | 34    | 80.95      |
| Dropouts                | 3               | 8     | 19.04      |

Observations and Discussion
The Table 1 shows total of 42 patients of Madhumeha were selected in this study.

General observations
A majority of the patients in this study, i.e. 35.71%, belonged to the age group of 51–60 years. These findings were concordant with the recent statistical data, which shows that the onset of Type II DM after the 40s is most common.

A majority of the patients, i.e. 85.71%, were living in urban areas and 14.28% of the patients were from rural areas. This data is concordant with the recent W.H.O. Annual Report (2000) that the prevalence of DM is greater in the urban than in the rural areas. After the housewives, i.e. 35.71%, the businessmen (30.95%) were maximum in number. The figure shows that disease occurs in those classes who usually lead a sedentary lifestyle and eat more than what is required. 59.52% of the patients confirmed a family history of Madhumeha, which shows that genetic predisposition is more important in type II DM.

A majority of the patients, i.e. 40.47%, were suffering from the disease for >10 years and were followed by 23.80% patients with chronicity of 1–5 years. The maximum number of patients, i.e. 38.09%, were of VataJ-Kapha Prakriti. The majority of the patients, i.e. 76.19%, had Madhyma Sara, followed by Madhyma Samahanama (90.47%) and Madhyma Satva (85.71%). The maximum number of patients, i.e. 57.14%, were found to have Vishamagni, followed by 28.57% having Samagni [Figure 1]. These findings indicate the dominance of Vata Doshha in the Samprapti of Madhumeha. It was found that maximum patients i.e 58.45% were taking katu-tikta and kashaya rasa while 54.76% were taking Dadhi which were the predominant nidanas [Figure 2]. Among the Chief complaints found, maximum patients reported Karapadataladaha, kshudhabhikya and trishnaadhikya (69.04%) each [Figure 3].

Effect of Therapies
**Group I-Nyagrodhadi Ghanavati (Shamana group)**

Effect of **Nyagrodhadi Ghanavati on chief complaints**
The Table 2 reveals that the Nyagrodhadi Ghanavati group provided a statistically highly significant (P < 0.001) relief in Prabhuta Mutrata by 78.94%, Avila Mutrata by 71.42%, Kshudhadihya by 73.17% and Trishnaadhikya by 77.14%, whereas the relief obtained in Kara-pada-tala-daha was 83.33%, which was statistically significant (P < 0.001). On associated signs and symptoms, it provided statistically highly significant relief (P<0.001) in Alasya (67.21%), Davabhya (84.61%), Atisweda (79.31%), and Kara-pada-supti (82.97%) [Table 3].

The therapy showed 1.67% relief in fasting blood sugar, which
was statistically insignificant (P < 0.10), whereas it showed no relief in the values of post-prandial blood sugar [Table 4]. In shamana group, 44.44% patients were found markedly improved and 55.55% patients were moderately improved [Table 5]. The combined therapy provided statistically highly significant relief (P < 0.001) in Prabhuta Mutrata (90.24%), Trishnadhikya (87.17%) and Kshudhadhikya (83.33%), Avila Mutrata (88.85%) and Kara-pada-tala Daha (88.09%) [Table 6]. The therapy provided statistically highly significant relief in Alasya (79.62%), Daurbalya (86.66%), Ati-sveda (73.58%), Kara-pada-supti (91.30%) [Table 7].

The therapy provided statistically non-significant relief in Jyotikumari et al.: Effect of Nyagrodhadi Ghanavati & Virechana in Madhumeha

![Figure 1: General observations](image1)

![Figure 2: Nidana sevana found in the patients](image2)

### Table 2: Effect of Nyagrodhadi Ghanavati on chief complaints

| Signs and Symptoms          | Mean Score | % Relief | S.D. (±) | S.E. (±) | ‘t’   | P value |
|-----------------------------|------------|----------|----------|----------|-------|---------|
| Prabhuta Mutrata (n=16)     | 2.37       | 0.50     | 78.94    | 0.90     | 8.30  | <0.001  |
| Avila Mutrata (n=4)         | 1.75       | 0.50     | 71.42    | 0.95     | 2.61  | <0.05   |
| Kshudhadhikya (n=15)        | 2.73       | 0.73     | 73.17    | 0.88     | 8.75  | <0.001  |
| Trishnadhikya (n=15)        | 2.33       | 0.53     | 77.14    | 1.01     | 6.87  | <0.001  |
| Kara-Pada-Tala Daha (n=15)  | 2.40       | 0.40     | 83.33    | 0.80     | 9.60  | <0.001  |

### Table 3: Effect of Nyagrodhadi Ghanavati on associated symptoms

| Associated Signs and Symptoms | Mean Score | % Relief | S.D. (±) | S.E. (±) | ‘t’   | P value |
|------------------------------|------------|----------|----------|----------|-------|---------|
| Alasya (n=18)                | 3.38       | 1.11     | 67.21    | 0.76     | 12.63 | <0.001  |
| Daurbalya (n=16)             | 2.43       | 0.37     | 84.61    | 0.89     | 9.17  | <0.001  |
| Ati-sveda (n=18)             | 3.22       | 0.66     | 79.31    | 0.76     | 14.10 | <0.001  |
| Kara-pada-supti (n=17)       | 2.76       | 0.47     | 82.97    | 0.70     | 13.37 | <0.001  |
| Purisha Baddhata (n=11)      | 2.18       | 1.27     | 41.66    | 1.04     | 2.88  | <0.01   |
| Aruchi (n=14)                | 2.50       | 1.78     | 28.57    | 0.82     | 3.23  | <0.01   |
| Shula (n=14)                 | 2.28       | 1.42     | 37.50    | 1.01     | 3.16  | <0.001  |
| Shrama-Shwasa (n=13)         | 2.06       | 0.46     | 77.77    | 0.85     | 8.95  | <0.001  |
| Pindiko-udveshatan (n=18)    | 2.77       | 0.27     | 90.00    | 0.76     | 13.93 | <0.001  |
| Ati-nidra (n=16)             | 2.31       | 0.56     | 72.97    | 0.47     | 14.10 | <0.001  |
| Libido (n=11)                | 2.27       | 1.63     | 28.00    | 0.92     | 2.28  | <0.01   |

### Table 4: Effect of Nyagrodhadi Ghanavati on biochemical values

| Biochemical Values          | Mean score | % Relief | S.D. (±) | S.E. (±) | ‘t’   | P value |
|-----------------------------|------------|----------|----------|----------|-------|---------|
| Blood Sugar                 |            |          |          |          |       |         |
| Fasting (n=18)              | 176.05     | 173.11   | 1.67     | 41.10    | 9.68  | <0.10   |
| Postprandial (n=18)         | 232.22     | 245.72   | 3.94     | 80.54    | 18.98 | -       |
| S. Cholesterol (n=18)       | 196.27     | 188.27   | 2.23     | 23.80    | 5.61  | <0.02   |
Table 5: Total effect of Nyagrodhadi Ghanavati on 18 patients of Madhumeha

| Results          | No. of patients | Percentage |
|------------------|-----------------|------------|
| Controlled       | 00              | 00         |
| Markedly Improved| 08              | 44.44      |
| Improved         | 10              | 55.55      |
| Unchanged        | 00              | 00         |

Table 6: Effect of Combined therapy on chief complaints

| Signs and Symptoms   | Mean score | % Relief | S.D. (±) | S.E. (±) | ‘t’ | P value |
|----------------------|------------|----------|----------|----------|-----|---------|
| B.T.                 | A.T.       |          |          |          |     |         |
| Prabhuta Mutrata (n=16) | 2.56       | 0.25     | 90.24    | 0.70     | 13.13 | <0.001  |
| Avila Mutrata (n=07)  | 1.28       | 0.14     | 88.88    | 0.37     | 8.00  | <0.001  |
| Kshudhadhikya (n=16)  | 2.62       | 0.43     | 83.33    | 0.63     | 13.35 | <0.001  |
| Trishnadhiya (n=16)   | 2.43       | 0.31     | 87.17    | 0.50     | 17.00 | <0.001  |
| Kara-Pada-Tala Daha (n=16) | 2.62 | 0.31     | 88.09    | 0.70     | 11.35 | <0.001  |

Table 7: Effect of combined therapy on associated symptoms

| Associated Signs and Symptoms | Mean score | % Relief | S.D. (±) | S.E. (±) | ‘t’ | P value |
|-------------------------------|------------|----------|----------|----------|-----|---------|
| B.T.                          | A.T.       |          |          |          |     |         |
| Alasya (n=16)                 | 3.37       | 0.68     | 79.62    | 0.94     | 11.35 | <0.001  |
| Daurbalya (n=16)              | 2.56       | 0.37     | 85.36    | 0.65     | 13.35 | <0.001  |
| Atri-sveda (n=16)             | 3.31       | 0.81     | 73.58    | 0.72     | 13.40 | <0.001  |
| Kara-pada-supti (n=16)        | 2.80       | 0.31     | 91.30    | 0.71     | 14.60 | <0.001  |
| Purisha Baddhata (n=12)       | 2.33       | 0.66     | 71.40    | 0.88     | 6.50  | <0.001  |
| Aruchi (n=16)                 | 2.62       | 1.31     | 50.00    | 0.60     | 8.71  | <0.001  |
| Shula (n=12)                  | 2.25       | 0.75     | 66.66    | 0.79     | 6.51  | <0.001  |
| Shrama-Shwasa (n=15)          | 2.33       | 1.06     | 54.28    | 0.45     | 10.71 | <0.001  |
| Pindiko-udveshatan (n=16)     | 2.93       | 0.31     | 89.36    | 0.61     | 16.95 | <0.001  |
| Atinidra (n=16)               | 2.62       | 0.56     | 78.57    | 0.99     | 8.26  | <0.001  |
| Libido (n=11)                 | 1.45       | 0.81     | 37.50    | 0.52     | 3.46  | <0.001  |

Table 8: Effect of combined therapy on biochemical values

| Biochemical Values       | Mean score | % Relief | S.D. (±) | S.E. (±) | ‘t’ | P value |
|--------------------------|------------|----------|----------|----------|-----|---------|
| B.T.                     | A.T.       |          |          |          |     |         |
| Blood Sugar              |            |          |          |          |     |         |
| Fasting (n=16)           | 250.87     | 225.18   | 10.23    | 62.53    | 15.63 | 1.63    | <0.10  |
| Postprandial (n=15)      | 323.00     | 297.53   | 6.43     | 82.03    | 21.18 | 0.98    | <0.10  |
| S. Cholesterol (n=16)    | 203.18     | 204.25   | -1.96    | 15.59    | 3.89 | -1.02   | -      |

Table 9: Total effect of combined therapy on 16 patients of Madhumeha

| Results          | No. of patients | Percentage |
|------------------|-----------------|------------|
| Controlled       | 00              | 00         |
| Markedly improved| 11              | 68.75      |
| Improved         | 05              | 31.25      |
| Unchanged        | 00              | 00         |

(P < 0.10) in the fasting blood sugar level (10.53%) and post-prandial blood sugar (6.43%) level [Table 8].

In this group, 68.75% of the patients were found to be markedly improved and 31.25% of the patients were found to be moderately improved. No patient was assessed as controlled and mild improved and unchanged in this group [Table 9].

Acharya Charaka has classified Pramaha into two types, i.e.
Sthula Pramehi and Krisha Pramehi. He has advocated Samshodhana in Sthulapramehi, whose doshas have aggravated, and in patients having sufficient bala (strength). Hence, here, Virechana Karma is selected for such types of patients. Also, as said by Acharya Vagbhatta, there are no chances of vitiation of doshas after doing Samshodhana.[3]

Probable mode of action

Nyagrodhadi Ghana Vati

The ingredients of Nyagrodhadi Ghana Vati are having Tikta Rasa (32.14%), Kashaya Rasa (75%), Katu Rasa (35.14%), Madhura Rasa (42.85%), Amla Rasa (14.28%), Laghu Guna (60.07%), Raksha Guna (64.42%), Tikshna Guna (17.55%), Snigdha Guna (21.42%), Guru Guna (39.28%), Sara Guna (7.14%), Mrudu Guna (3.57%), Ushna Vritya (42.85%), Sheeta Vritya (57.14%), Madhura Vipaka (53.71%), Katu Vipaka (64.28%), Kapha-Vatashamakata (25%), Kapha-Pittashamakata (39.28%) and Vata-Pittashamakata (21.42%).

In Nyagrodhadi Ghana Vati, Tikta-Katu-Kashaya Rasa, Laghu-Raksha-Tikshna Guna, Ushna Vritya and Katu Vipaka might have corrected the Kapha Dushti. Along with this, it contains the Tikta Rasa, Sheeta Vritya and Madhura Vipaka, which might have corrected the vitiation of Pitta. In this way, this preparation acted on Kapha-Pitta and also Kaphavargiya Dushyas. Thus, it provided significant relief in the disease Madhumeha. The alleviation of Kapha and Pitta also helped to remove the obstruction (Avarana) to the path of Vata, thereby alleviating its Dushti.

Probable mode of action of Virechana

As said by Acharya Sushruta, in the patients of Madhumeha, Kapha and Pitta are vitiatted excessively and they remain lying in the lower part of the body. Virechana has the quality to eliminate both Pitta and Kapha. Also, it is the best Shodhana therapy for the elimination of Doshas lying in the lower parts of the body. By the elimination of Kapha and Pitta, obstructions are removed (Avarana), which are caused by the path of Vata. At the same time, the elimination of Kapha also alleviates the vitiatted Kapha Vargiya Dushyas. In this way, the Virechana therapy reduced the vitiation of Doshas and the Dushyas. In this group, the Shamana therapy was given after the Virechana. When the Shamana drug was given to the patients whose vitiated Doshas were already eliminated by the Virechana therapy, it ultimately provided better relief in comparison with the Shamana therapy alone. The above-mentioned facts are evident from the results of this study, as the Virechana and Nyagrodhadi Ghanavati group (combined therapy) provided better relief in signs and symptoms of the patients of Madhumeha.

Conclusion

Avaranjanya Madhumeha can be correlated with DM type 2 because Avarana-aggravated Vata causes depletion of Vital Dhatu, like Oja, Majja and Vasa, and affects the normal physiology. Sedentary life, lack of exercise, faulty food habits and improper medication precipitates the disease. Urbanization also plays a role in the enhancement of the disease. Madhumeha (type 2 DM) affects mostly individuals after the age of 40 years. Strong genetic predisposition is seen in Type 2 DM patients. Treatment modalities based on the consideration of vitiatted Kapha, Meda and Vata, having properties like Shleshamamedohara, Pramehaghna and Kapha-Vatashamaka, should be used. In the present study, better relief was observed in signs and symptoms of the patients in comparison with the biochemical parameters. After evaluating the total effect of therapies, it was observed that the Virechana and Nyagrodhadi Ghanavati (combined therapy) provided better relief in the patients of Madhumeha in comparison with the Nyagrodhadi Ghanavati (Shamana therapy) alone.

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हिंदी सारांश

मधुमेह पर न्याग्रोधादि घन वटी एवं विरेचन कर्म का तुलनात्मक अध्ययन

ज्योति कुमारी चामी भेंता वी.डी.शुक्ला आलंकृता देव तुषार सिंहल

मधुमेह का मुख्य लक्षण प्रमुख आविलमूत्त है। आचार्य चर्क ने इसके दो प्रकार बताए हैं– रस्तुल प्रमेही एवं ज्योति प्रमेही। रस्तुल प्रमेही की विकिर्ण में रंगोलक का विकास होता है। रस्तुल प्रमेही की टाइप 2 धातवित्त्व के साथ तुलना करके हैं। आचार्य चर्क ने इसे कहा है कि मधुमेह में शक्ति शरीर के नीचे का भाग में स्थित होता है। अन्य विरेचन द्वारा प्रकृति का खाद्य विभव में दोष समाधान के लिए है जो दोषों को पंजीकृत किया गया है। उन्हें सार्वजनिक आविलमूत्वी दो वटी में विविधता किया गया। वर्ण में मधुमेह के 21 आउटर को न्याक्रोधादि घन वटी–2 वटी त्री के साथ उद्देश्य के साथ दी गई है। वर्ण में विशेष कर्म प्रणाली न्याक्रोधादि घन वटी श्रेणी के लिए स्थिति है। खाने-�ाने में आउटर द्वारा आविलमूत्वी के प्रकृतिकल्पना प्रभाव का अध्ययन विविध रूप से निर्देशि अविलमूत्वी प्रभाव के आधार पर किया गया। यह गर्भ दिलों तथा यह दोषों में जो अविलमूत्वी है कि यह वर्ण में विशेषता प्रणाली वर्ण में अविलमूत्वी को अधकार कर सकता है। इससे आधार पर यह कहा जा सकता है कि विशेष के बाद दी गई शालन ओपेडिक मधुमेह में अधिकारलाभ होता है।