To Compare Efficacy of Nishkatakadi Kwath with Metformin in Madhumeha with Special Reference to Diabetes Mellitus ii

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Abstract

Madhumeha is a disease known since ancient times to the mankind, its upsurge is quiet alarming. On the basis of its symptomatology Madhumeha can be correlated to the features of Diabetes mellitus. Diabetes mellitus is a metabolic disorder of carbohydrate, fat, & protein characterized by hyperglycemia with or without glycosuria. It is associated with long-term potentially catastrophic effects on almost all systems of the body. Ayurveda can provide better management for Madhumeha without hazardous side effects. In Ayurveda, Madhumeha has been described as one among one of the 20 types of Prameha and is a sub-type of Vatika Prameha. 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. Nishkatakadi Kwath has been mentioned in Sahasrayoga under Kashaya Prakaran for Prameha Chikitsa, Nishakatakadi Kwath is being used widely for the treatment of Madhumeha in Kerala. That is why Nishakatakadi Kwath has been selected for the present study.

In this study to study various clinical symptoms of madhumeha with special reference to Diabetes Mellitus II. To compare efficacy of Nishkatakadi Kwath with Metformin inthe management of Madhumah,

To observe any possible adverse effect of Nishkatakadi Kwath if reported during the study. In the present study Trial and Control groups comprising 30 patients each of Madhumeha (Diabetes Mellitus type II) were treated with Nishkatakadi kwath with tab metformin and Tab Metformin alone respectively. This study shows that both the drugs NISHKATAKADI KWATH with metformin are more effective than METFORMIN in Madhumeha to reduce symptoms and patients score.

Key words: Madhumeha, Nishkatkadi Kwath, Diabetic Mellitus

Introduction

On the basis of its symptoms of Madhumeha can be correlated to the features of Diabetes mellitus.

Diabetes mellitus is a metabolic disorder of carbohydrate, fat, &protein characterized by hyperglycemia with or without glycosuria. It is associated with long-term potentially catastrophic effects on almost all systems of the body. These can manifest as minor annoyances at first but then insidiously destroy the cellular components of a given body part, organ, or entire system. Diabetes Mellitus is aggressively progressive and the prognosis is poorunless definite measures are taken to control the disease. At the present time there is no known cure for DM and even with proper medical management; prognosis may still be poor due to irreversible major impairments or severe disabilities. It is most often treated with diet and exercise, typically in conjunction with oral hyperglycemic drugs (OHD). Ayurveda can provide better management for Madhumeha without hazardous side effects. In Ayurveda, Madhumeha has been described as one among one of the 20 types of Prameha and is a sub-type of Vatika Prameha.

Nishakatakadi Kwath has been mentioned in Sahasrayoga under Kashaya Prakaran for Prameha Chikitsa. Nishakatakadi Kwath is being used widely for the treatment of Madhumeha in Kerala. That is why Nishakatakadi Kwath has been selected for the present study.

Aim and Objectives:

1) To study various clinical symptoms of madhumeha with special reference to Diabetes Mellitus II.
2) To compare efficacy of Nishkatakadi kwath with Metformine in the management of Madhumaha.
3) To observe any possible adverse effect of Nishkatakadi Kwath if reported during the study.
4) To study in details about Madhumeha according to available ayurvedic literature.
5) To study in details about Diabetic Mellitus according to Modern science.

Methods and Materials:

Patients having chief complains of Prameha having features like Prabhumutrata, Pipasa, Alasya, Angamard, etc. Diabetes Mellitus was selected randomly on the OPD & I.P.D basis of Kaychikitsa Department of our college.60 patients was divided by Randomisation, subjects in group A and subjects in group B.
Group A- Nishkatadi kwath + Tab. Metformin3
DOSE 20 ml-BD + 500 mg-BD
ANUPAN- Water, SEVAN KAL – Adhobhakt(After meal) ROUTE OF ADMINISTRATION - Oral ,DURATION OF TREATMENT 45 Days
FOLLOW UP - After every 15 days
Group B(control group) METFORMIN+ NIDANPARIVARJAN
Metformin - 500 mg-BD Anupan – Water, After meal , Oral –45 Days, Follow Up – After every 15 Days.

Selection Criteria:

Inclusion Criteria:
Patients representing signs and symptoms of Madhumeha.

Patient age group with 16-60 yr.

Patient with BSL Fasting 110-200mg/dl and Post Prandial 160-350mg/dl.

Patients willing to participate in the study will be selected explaining them details about study.

Exclusion Criteria –

Patients belonging to age group below 16 and above 60 years.

Patient with any illness or Prameha associated with other systemic diseases.

Fasting BSL<110mg/dl and Post Prandial < 160mg/dl.

Known case of IDDM

Objective Criteria 1

BSL Fasting and Post meal - Group A – As value of p is far less than 0.05 extremely significant differences was observed between mean of BT and AT score in BSL fasting parameter. Hence it is concluded that Nishkatakadi kwath with metformin is highly effective to reduce BSL fasting in Madhumeha (DM II).

BSL Fasting and Post meal - Group B As value of p is far less than 0.05 extremely significant differences was observed between mean of BT and AT score in BSL fasting parameter. Hence it is concluded that Tab Metformin is highly effective to reduce BSL fasting in Madhumeha (DM II).

HBA1C – Group A - As value of p is far less than 0.05 extremely significant differences was observed between mean of BT and AT score in HbA1C parameter. Hence it is concluded that Nishkatakadi Kwath along with Metformin is highly effective to reduce HbA1C in Madhumeha (DM II)

Group B- As value of p is far less than 0.05 extremely significant differences was observed between mean of BT and AT score in HbA1C parameter. Hence it is concluded that Tab Metformin is highly effective to reduce HbA1C in Madhumeha (DM II).

USL – Group A- As value of p is far less than 0.05 extremely significant differences was observed between mean of BT and AT score in USL (random) parameter Hence it is concluded that Nishkatakadi kwath along with metformin is highly effective to reduce USL (random) in Madhumeha (DM II).

Group B- As value of p is far less than 0.05 extremely significant differences was observed between mean of BT and AT score in USL (random) parameter. Hence it is concluded that Tab Metformin is highly effective to reduce USL (random) in Madhumeha (DM II).

Discussion: In the case of symptoms Prabhutamutrata, Naktmutrata, Pipasavruddhi, Kshudhavruddhi, Hastpadtal dha, Swedaprapruti and Anutsaha the test has shown insignificant difference between mean differences of Group A and Group B. H1 is accepted and H0 is rejected here. It was hence concluded that Nishkatakadi kwath along with tab metformin is effective than Tab Metformin alone to reduce Prabhutamutrata, Naktmutrata, Pipasavruddhi, Kshudhavruddhi, Hastpadtal dha, Swedaprapruti and Anutsaha in Madhumeha (DM II).

Decrease in Objective parameters before and after treatment Average decrease in BSL (F) in Group A is 69.03 mg/dl while in Group B is 67.9. Average decrease in BSL (PP) in Group A is 84.53 mg/dl while
in Group B is 84.17. Average decrease in USL (R) in Group A is 2.1 while in Group B is 1.87. Average decrease in HbA1C in Group A is 3.24 while in Group B is 2.3.

**Conclusion:** To sum up, it can be said that the present study shows significant remission in Signs and symptoms of illness Madhumeha with related to type II Diabetes Mellitus confirmed that definite reduction in blood sugar levels. Therefore it is imperative that the combination of Nishkatakadi kwath and tab metformin is helps in management of the disease.

**Summary:** The research study was carried out under following headings:-

Observations and Results:
This part consists of the demographic data of the patients, comparison of the subjective and objective parameters before and after the treatment and the overall response to the treatment. The symptoms likes’ prabhub mutrata, naktmutrata, pipasavruddhi, kshudhavruddhi, hastpadal doha, swedatispravruhti and anutsaha found excellent significant effect in both groups.

Statistical Analysis: For statistical analysis, Wilcoxon signed rank test and Mann Whitney s U test is used for subjective criteria.

**Discussion:** Madhumeha is mainly found in Vat-Pittaj prakruti patients. This shows that the predominance of Vata, Pittadoshasins Prameha& males are more affected than females. There is significant improvement found in symptoms of Madhumeha patient safer giving both the drugs.

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### Master Chart – Group A

| Sr.No. | Reg.No | Age | Sex  | Religion | Diet   | Prakru | Prabhub Mutrata | Nakt mutrat a | Pipasavruddhi | Kshudhavruddhi |
|--------|--------|-----|------|----------|--------|--------|----------------|---------------|---------------|---------------|
| 1      | 36587  | 40  | M    | Hindu    | V+N    | Vatpradh | 3              | 0             | 45            | 0             | 45            | 0             | 45            |
| 2      | 2660   | 53  | F    | Hindu    | V+N    | Vatpradh | 2              | 0             | 3             | 0             | 2             | 0             | 3             | 1             |
| 3      | 3289   | 51  | F    | Hindu    | V+N    | Vatpradh | 3              | 1             | 3             | 0             | 2             | 0             | 3             | 0             |
| 4      | 9213   | 40  | M    | Hindu    | V+N    | Vatpradh | 2              | 0             | 1             | 0             | 1             | 0             | 2             | 0             |
| 5      | 9679   | 45  | M    | Hindu    | V+N    | Vatpradh | 2              | 0             | 3             | 0             | 2             | 0             | 2             | 0             |
| 6      | 9973   | 60  | M    | Hindu    | V+N    | Vatpradh | 2              | 0             | 2             | 0             | 2             | 0             | 1             | 0             |
| 7      | 10385  | 58  | F    | Hindu    | V+N    | Kaphapr  | 3              | 0             | 2             | 0             | 1             | 0             | 3             | 0             |
| 8      | 10966  | 38  | F    | Hindu    | V+N    | Vatpradh | 2              | 0             | 3             | 0             | 1             | 0             | 3             | 1             |
| 9      | 10975  | 48  | M    | Hindu    | V      | Vatpradh | 3              | 0             | 3             | 0             | 3             | 0             | 3             | 0             |
| 10     | 10985  | 52  | M    | Hindu    | V+N    | Vatpradh | 3              | 1             | 2             | 1             | 2             | 0             | 2             | 0             |
| 11     | 11306  | 50  | M    | Hindu    | V+N    | Vatpradh | 3              | 0             | 2             | 0             | 1             | 0             | 1             | 0             |
| 12     | 11359  | 40  | F    | Hindu    | V      | Vatpradh | 3              | 0             | 3             | 0             | 2             | 1             | 3             | 1             |
| 13     | 6971   | 40  | M    | Hindu    | V      | Vatpradh | 3              | 0             | 2             | 0             | 3             | 0             | 2             | 0             |
| 14     | 13307  | 52  | F    | Hindu    | V      | Kaphapr  | 3              | 1             | 3             | 1             | 3             | 0             | 2             | 0             |
| 15     | 13409  | 35  | F    | Hindu    | V+N    | Vatpradh | 3              | 1             | 2             | 0             | 3             | 0             | 2             | 0             |
| 16     | 9405   | 50  | M    | Hindu    | V+N    | Vatpradh | 3              | 0             | 2             | 0             | 2             | 1             | 3             | 0             |
| 17     | 16509  | 60  | M    | Hindu    | V      | Vatpradh | 3              | 0             | 2             | 0             | 2             | 1             | 2             | 0             |
| 18     | 23807  | 27  | F    | Hindu    | V      | Vatpradh | 3              | 0             | 3             | 1             | 2             | 0             | 2             | 1             |
| 19     | 23984  | 42  | M    | Hindu    | V+N    | Kaphapr  | 3              | 1             | 2             | 1             | 3             | 0             | 3             | 0             |
| 20     | 24040  | 29  | M    | Hindu    | V+N    | Kaphapr  | 2              | 0             | 3             | 0             | 2             | 0             | 3             | 1             |
| 21     | 24826  | 28  | M    | Hindu    | V      | Vatpradh | 3              | 0             | 3             | 0             | 1             | 1             | 3             | 1             |
| 22     | 26166  | 30  | F    | Hindu    | V+N    | Vatpradh | 3              | 1             | 3             | 0             | 3             | 1             | 3             | 1             |
| 23     | 26196  | 32  | F    | Hindu    | V      | Vatpradh | 3              | 0             | 3             | 1             | 2             | 1             | 3             | 1             |
| 24     | 26609  | 20  | F    | Hindu    | V+N    | Kaphapr  | 3              | 0             | 3             | 0             | 2             | 1             | 3             | 1             |
| 25     | 26923  | 46  | M    | Hindu    | V+N    | Vatpradh | 3              | 0             | 3             | 1             | 3             | 0             | 3             | 0             |
| 26     | 27296  | 38  | M    | Hindu    | V+N    | Vatpradh | 3              | 0             | 3             | 0             | 1             | 0             | 3             | 0             |
| 27     | 28090  | 42  | F    | Hindu    | V      | Vatpradh | 3              | 0             | 2             | 0             | 3             | 0             | 3             | 1             |
| 28     | 29250  | 57  | F    | Hindu    | V      | Vatpradh | 2              | 0             | 3             | 0             | 1             | 0             | 2             | 1             |
| 29     | 23596  | 42  | M    | Hindu    | V+N    | Vatpradh | 1              | 0             | 3             | 1             | 2             | 0             | 2             | 0             |
| 30     | 24104  | 45  | M    | Hindu    | V+N    | Vatpradh | 3              | 0             | 2             | 0             | 2             | 0             | 3             | 1             |
| Sr. No. | Reg.No  | Age | Sex | Religion | Diet       | Prakruti         | Prabhut Mutrata | Nakt mutrata | Pipasa vrudhi | Kshud havrudhi | Hastpadtal Daha |
|--------|--------|-----|-----|----------|------------|------------------|----------------|--------------|---------------|----------------|-----------------|
| 1      | 2563   | 53  | F   | Hindu    | V+N        | Vatpradhan pitta | 3              | 0            | 2             | 1              | 3               |
| 2      | 2711   | 55  | M   | Hindu    | V+N        | Kaphapradhan Vat | 2              | 1            | 2             | 1              | 0               |
| 3      | 7063   | 25  | M   | Hindu    | V+N        | Vatpradhan Kaph  | 2              | 1            | 2             | 1              | 0               |
| 4      | 9404   | 26  | M   | Hindu    | V+N        | Vatpradhan pitta | 2              | 0            | 2             | 0              | 2               |
| 5      | 10362  | 50  | M   | Hindu    | V+N        | Vatpradhan pitta | 3              | 0            | 3             | 1              | 3               |
| 6      | 10722  | 30  | M   | Hindu    | V           | Vatpradhan pitta | 3              | 0            | 2             | 1              | 0               |

**Master Chart – Group B**
|   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|
| 7 | 10971| 54 | M | Hindu | V+N | Vatpradhan pitta | 1 | 0 | 3 | 0 | 3 | 0 | 3 | 0 | 1 | 0 |
| 8 | 10976| 37 | F | Hindu | V+N | Vatpradhan pitta | 1 | 0 | 2 | 1 | 3 | 0 | 3 | 1 | 1 | 0 |
| 9 | 10980| 39 | M | Hindu | V+N | Vatpradhan pitta | 3 | 1 | 2 | 1 | 3 | 1 | 3 | 1 | 2 | 1 |
| 10 | 11354| 35 | M | Hindu | V+N | Kaphapradhan Vat | 2 | 0 | 2 | 0 | 3 | 1 | 3 | 0 | 1 | 0 |
| 11 | 6980 | 50 | F | Hindu | V+N | Kaphapradhan Vat | 2 | 0 | 3 | 0 | 3 | 1 | 3 | 0 | 1 | 0 |
| 12 | 11857| 30 | F | Hindu | V+N | Vatpradhan pitta | 2 | 1 | 3 | 0 | 3 | 1 | 3 | 1 | 2 | 1 |
| 13 | 13385| 54 | M | Hindu | V+N | Pittapradhan Vat | 3 | 0 | 3 | 0 | 3 | 0 | 3 | 0 | 1 | 0 |
| 14 | 14157| 58 | M | Hindu | V+N | Vatpradhan pitta | 2 | 0 | 3 | 1 | 3 | 1 | 3 | 1 | 2 | 1 |
| 15 | 10985| 52 | M | Hindu | V+N | Vatpradhan pitta | 3 | 0 | 3 | 0 | 3 | 1 | 2 | 0 | 1 | 0 |
| 16 | 23811| 50 | M | Hindu | V | Kaphapradhan Vat | 2 | 0 | 2 | 0 | 3 | 1 | 3 | 1 | 2 | 0 |
| 17 | 24030| 55 | M | Hindu | V | Kaphapradhan Vat | 3 | 0 | 3 | 0 | 3 | 1 | 3 | 0 | 3 | 0 |
| 18 | 24510| 42 | M | Hindu | V+N | Kaphapradhan Vat | 3 | 0 | 2 | 0 | 3 | 1 | 2 | 0 | 3 | 0 |
| 19 | 26122| 34 | M | Hindu | V | Vatpradhan pitta | 3 | 1 | 2 | 0 | 3 | 1 | 2 | 0 | 3 | 0 |
| 20 | 26191| 37 | M | Hindu | V+N | Vatpradhan pitta | 3 | 1 | 2 | 0 | 1 | 0 | 3 | 0 | 1 | 0 |
| 21 | 26298| 32 | M | Hindu | V+N | Pittapradhan Vat | 3 | 1 | 3 | 1 | 3 | 0 | 3 | 1 | 1 | 0 |
| 22 | 26715| 32 | M | Hindu | V+N | Kaphapradhan Vat | 2 | 1 | 2 | 0 | 3 | 1 | 3 | 0 | 1 | 0 |
| 23 | 27112| 29 | F | Hindu | V | Kaphapradhan Vat | 2 | 1 | 2 | 0 | 3 | 0 | 3 | 0 | 2 | 0 |
| 24 | 28085| 40 | M | Hindu | V+N | Vatpradhan pitta | 3 | 1 | 3 | 0 | 3 | 1 | 3 | 0 | 3 | 1 |
| 25 | 28995| 60 | M | Hindu | V+N | Vatpradhan pitta | 3 | 1 | 3 | 1 | 2 | 0 | 3 | 0 | 1 | 0 |
| 26 | 29360| 60 | F | Hindu | V+N | Vatpradhan pitta | 1 | 0 | 2 | 1 | 2 | 0 | 2 | 1 | 1 | 0 |
| 27 | 23597| 34 | F | Hindu | V | Vatpradhan pitta | 3 | 1 | 2 | 0 | 3 | 0 | 3 | 0 | 2 | 0 |
| 28 | 23970| 27 | M | Hindu | V | Vatpradhan pitta | 2 | 1 | 2 | 0 | 2 | 0 | 2 | 1 | 2 | 1 |
| 29 | 13967| 57 | M | Hindu | V | Vatpradhan pitta | 3 | 0 | 2 | 0 | 2 | 0 | 2 | 1 | 2 | 0 |
| 30 | 34105| 27 | F | Hindu | V+N | Vatpradhan pitta | 2 | 1 | 3 | 0 | 3 | 0 | 2 | 0 | 3 | 0 |

| Swedpravrtti | Anushtha | BSL | Urine Examination | Hb A1C |
|---|---|---|---|---|
| 0 | 45 | 0 | 45 | 1st B T | 45th A T | 1st | 45th | B T | AT |
| 2 | 1 | 2 | 0 | F | PP | F | PP | +++ | + | 10 | 7.2 |
| 1 | 1 | 2 | 1 | 168 | 223 | 99 | 170 | +++ | + | 10 | 7.2 |
| 3 | 0 | 2 | 0 | 178 | 258 | 100 | 158 | ++ | Trace | 10 | 7.2 |
| 3 | 1 | 3 | 0 | 169 | 256 | 101 | 135 | ++ | + | 8.5 | 6.1 |
| 2 | 1 | 2 | 1 | 160 | 200 | 88 | 154 | +++ | Trace | 10 | 7.5 |
| 3 | 0 | 3 | 1 | 180 | 222 | 74 | 136 | ++ | + | 8.3 | 6.1 |
| 2 | 0 | 3 | 0 | 172 | 226 | 75 | 143 | +++ | Trace | 7.9 | 6.1 |
| 3 | 0 | 3 | 1 | 140 | 248 | 79 | 145 | +++ | Trace | 9.2 | 6.9 |
| 3 | 1 | 2 | 0 | 150 | 250 | 98 | 148 | ++ | Ab | 11 | 7.2 |
| 2 | 0 | 3 | 1 | 165 | 243 | 110 | 140 | + | Ab | 10 | 7.2 |
| 3 | 0 | 2 | 0 | 152 | 253 | 78 | 110 | ++ | Ab | 9.2 | 6.9 |
| 3 | 1 | 3 | 1 | 166 | 201 | 70 | 135 | +++ | Trace | 10 | 6.1 |
| 2 | 1 | 3 | 0 | 178 | 256 | 118 | 160 | ++ | Ab | 9 | 6.2 |
| 3 | 1 | 2 | 1 | 166 | 258 | 110 | 147 | ++ | + | 8.6 | 6.3 |
| 2 | 0 | 2 | 0 | 173 | 255 | 97 | 171 | ++ | + | 7.6 | 6.7 |
| 2 | 0 | 2 | 0 | 174 | 259 | 105 | 145 | +++ | Ab | 8 | 6 |
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|   | 2 | 0 | 3 | 0 | 177 | 247 | 101 | 153 | ++ | + | 8.2 | 6 |
|---|---|---|---|---|-----|-----|-----|-----|----|---|----|---|
| 3 | 0 | 2 | 1 | 145 | 221 | 95 | 170 | +++ | Trace | 10 | 7.8 |
| 2 | 1 | 3 | 1 | 156 | 210 | 92 | 154 | +++ | Ab | 11 | 10 |
| 2 | 1 | 3 | 1 | 170 | 235 | 94 | 210 | +++ | + | 11 | 10 |
| 2 | 1 | 2 | 1 | 168 | 226 | 121 | 140 | +++ | Ab | 8.5 | 7 |
| 3 | 1 | 2 | 1 | 158 | 236 | 81 | 145 | +++ | Ab | 9.2 | 6 |
| 3 | 0 | 3 | 0 | 148 | 245 | 98 | 165 | ++ | Ab | 6.3 | 6 |
| 2 | 0 | 3 | 0 | 139 | 258 | 89 | 170 | + | Ab | 11 | 7 |
| 2 | 0 | 3 | 0 | 148 | 210 | 92 | 149 | +++ | Trace | 9.2 | 6.5 |
| 1 | 0 | 1 | 0 | 139 | 250 | 81 | 142 | +++ | + | 10 | 7.8 |
| 2 | 0 | 2 | 0 | 153 | 245 | 79 | 129 | ++ | Ab | 6.3 | 6 |
| 3 | 0 | 2 | 0 | 168 | 220 | 80 | 161 | +++ | + | 9.5 | 6.2 |
| 3 | 1 | 3 | 0 | 138 | 223 | 84 | 143 | +++ | + | 9.4 | 6 |
|   | 172 | 228 | 97 | 150 | +++ | + | 8.5 | 6 |

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