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Research Article

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, and 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. 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.

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 in the management of Madhumeha, 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.

Keywords: Madhumeha; Nishkatkadi Kwath; Diabetic Mellitus

Introduction

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

Diabetes mellitus is a metabolic disorder of carbohydrate, fat and 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 poor unless 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 [1].

Nishakatakadi Kwath has been mentioned in Sahasrayoga under Kashaya Prakaran for Prameha Chikitsa [2]. 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 Madhumeha.

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.

Materials and Methods

Patients having chief complains of Prameha having features like Prabhutmutrata, Pipasa, Alasya, Angamard, etc. Diabetes Mellitus was selected randomly on the OPD and 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. Metformin [3]
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 Prandial160-350mg/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

- BSL
- Urine Routine
- HbA1c

Duration: 45 Days.,
Follow Up: D0, D15, D30, D45.
Place of work: Ashvin Rural Ayurved College, Manchi Hill,Tal. Sangamner, Dist. Ahmednagar.

Preparation of drug

The drug was prepared in the dept. of Rasa Shashtra and Bhaishajya Kalpana, Ashvin Rural Ayurved College, Manchihill, Tal. Sangamner, Dist. Ahmednagar, Contents of Nishkatakadi kwath.

Nisha [4] (Haridra)

Latin name: *Curcuma longa*
Family: Zingiberaceae
The antioxidant properties of curcuma powder are probably due to the phenolic character of curcumin. (The wealth of India).
Therapeutic uses: Prameha, Shitapitta, Pandu, Kustha, Kandu.

Amalki

Latin name: *Embilica officinalis*
Family: Euphorbiaceae
Part Used: Fruit
Chemical Constituents: Fruit contains gallic acid, tannic acid, sugars, albumin, cellulose and minerals.
Therapeutic uses: Prameha, Hridroga, Yakritroga, Kustha, Raktapitta.
Pharmacological Actions: Fresh fruit is diuretic and laxative.

Kataka

Latin name: *Strychnos potatorum*
Family: Loganiaceae
Part Used: Seed Chemical Constituents: Seeds contain no strychnine but brucine is present.

Paranti

Latin name: *Ixora coccinea*
Family: Rubiaceae,
Part Used: Root,
Chemical Constituents: Root contains acrid aromatic oil, tannin, fatty acids, and a white crystalline substance.
The root bark contains octadecadienoic acid, mannitol and myristic acid.,
Pharmacological Actions: Roots are reported to possess sedative and stomachic properties, stimulate gastric secretions and bile and also possess astringent and antiseptic properties.

Lodhra

Latin name: *Symplocos racemosa*
Family: Symplocaceae
Part Used: Bark,
Chemical Constituents: Bark contains following alkaloids:- 0.24% Loturine, 0.02% Colloturine, 0.06% Loturidine and Quinovin

Ushira

Latin name: *Vetiveria zizanioidis*
Family: Graminae
Part Used: Root Chemical Constituents: A volatile essential oil, resin, colouring matter, a free acid, a salt of lime, oxide of iron and woody matters.

Actions (Karma): Twakdoshhar, Varnya,Dahaprashaman, Trishnanigrahana, Stambhana, Swedapanyana, Raktaprasadana.

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).

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).

Hence it is concluded that Nishkatakadi kwath along with metformin is highly effective to reduce USL (random) 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).

Results

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' prabhut mutrata, naktmutrata, pipasavrudhi, kshudhavrudhi, hastpadtal daha, swedatipravrutti 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.

Sr. No.	Reg. No	Age	Sex	Religion	Diet	Prakruti	Prabhut Mutrata		Nakt mutrata		Pipasavrudhi		Kshudhavrudhi	
							0	45	0	45	0	45	0	45
1	36587	40	M	Hindu	V+N	Vatpradhan pitta	3	0	3	0	2	0	3	1
2	2660	53	F	Hindu	V+N	Vatpradhan pitta	2	0	3	0	2	0	3	1
3	3289	51	F	Hindu	V+N	Vatpradhan pitta	3	1	3	0	2	0	3	0
4	9213	40	M	Hindu	V+N	Vatpradhan pitta	2	0	1	0	1	0	2	0
5	9679	45	M	Hindu	V+N	Vatpradhan pitta	2	0	3	0	2	0	2	0
6	9973	60	M	Hindu	V+N	Vatpradhan pitta	2	0	2	0	2	0	1	0
7	10385	58	F	Hindu	V+N	Kaphapradhan vat	3	0	2	0	1	0	3	0
8	10966	38	F	Hindu	V+N	Vatpradhan pitta	2	0	3	0	1	0	3	1
9	10975	48	M	Hindu	V	Vatpradhan pitta	3	0	3	0	3	0	3	0
10	10985	52	M	Hindu	V+N	Vatpradhan pitta	3	1	2	1	2	0	2	0
11	11306	50	M	Hindu	V+N	Vatpradhan pitta	3	0	2	0	1	0	1	0
12	11359	40	F	Hindu	V	Vatpradhan pitta	3	0	3	0	2	1	3	1
13	6971	40	M	Hindu	V	Vatpradhan pitta	3	0	2	0	3	0	2	0
14	13307	52	F	Hindu	V	Kaphapradhan vat	3	1	3	1	3	0	2	0
15	13409	35	F	Hindu	V+N	Vatpradhan pitta	3	1	2	0	3	0	2	0
16	9405	50	M	Hindu	V+N	Vatpradhan pitta	3	0	2	0	2	1	3	0
17	16509	60	M	Hindu	V	Vatpradhan pitta	3	0	2	0	2	0	2	1
18	23807	27	F	Hindu	V	Vatpradhan pitta	3	0	3	1	2	0	2	1
19	23984	42	M	Hindu	V+N	Kaphapradhan vat	3	1	2	1	3	0	3	0
20	24040	29	M	Hindu	V+N	Kaphapradhan vat	2	0	3	0	2	0	3	1

21	24826	28	M	Hindu	V	Vatpradhan pitta	3	0	3	0	1	1	3	1
22	26166	30	F	Hindu	V+N	Vatpradhan pitta	3	1	3	0	3	1	3	1
23	26196	32	F	Hindu	V	Vatpradhan pitta	3	0	3	1	2	1	3	1
24	26609	20	F	Hindu	V+N	Kaphapradhan vat	3	0	3	0	2	1	3	1
25	26923	46	M	Hindu	V+N	Vatpradhan pitta	3	0	3	1	3	0	3	0
26	27296	38	M	Hindu	V+N	Vatpradhan pitta	3	0	3	0	1	0	3	0
27	28090	42	F	Hindu	V	Vatpradhan kaph	3	0	2	0	3	0	3	1
28	29250	57	F	Hindu	V	Vatpradhan pitta	2	0	3	0	1	0	2	1
29	23596	42	M	Hindu	V+N	Vatpradhan pitta	1	0	3	1	2	0	2	0
30	24104	45	M	Hindu	V+N	Vatpradhan pitta	3	0	2	0	2	0	3	1

Table 1: (a) Master chart – Group A.

Hastpa Dtaldaha		Swedati pravritti		Anutsaha		BSL				Urine Examination		HbA1C	
						1st		45th					
0	45	0	45	0	45	BT		AT					
2	0	2	0	3	1	F	PP	F	PP	1st	45th	BT	AT
2	1	3	1	2	0	180	240	98	140	+++	Ab	11	7.8
2	1	3	0	2	0	170	250	110	170	++	Ab	10	6.7
1	0	2	0	1	0	148	248	88	110	++	Ab	11	8.2
2	0	1	0	2	0	136	200	86	135	+++	Ab	10	6.4
2	0	1	0	1	0	180	244	121	180	++	Ab	9.8	7
1	0	2	1	2	0	156	255	75	135	+++	Ab	9.5	6.5
1	0	2	0	3	0	126	260	90	153	+++	Ab	9.1	6.6
2	1	2	1	2	0	167	229	110	139	++	Ab	10	6
1	0	1	0	3	0	170	250	93	150	++	Ab	9.8	7.1
1	0	2	0	1	0	178	253	90	175	++	Ab	9.2	7.8
1	0	2	0	3	1	178	260	101	157	+++	+	11	7
1	0	2	0	2	0	172	252	92	122	++	Ab	9.4	6.7
2	0	2	0	3	1	175	238	70	145	++	Ab	10	6.2
3	0	2	0	3	1	177	229	91	147	+++	+	9.5	6.6
2	0	3	0	3	0	173	228	89	162	++	+	9.8	6.3
2	0	2	0	3	1	140	214	98	160	++	+	7.6	6
2	0	1	0	3	1	165	218	71	145	+++	Ab	10	6.2
2	0	1	0	3	1	170	200	121	185	+++	+	11	6
2	0	1	0	2	0	168	258	145	190	+++	+	10	6.3
1	0	1	0	2	0	168	208	98	140	++	Ab	11	7
2	1	2	1	2	0	166	218	89	150	+++	Ab	11	6.5
2	0	1	0	3	0	180	230	78	149	+	Ab	11	6
2	1	1	0	2	0	126	201	87	116	++	Ab	9.6	6.1
1	0	2	0	3	0	175	226	100	139	++	Ab	12	8
1	0	2	0	2	0	169	246	82	160	+++	+	10	6.1
2	1	1	0	2	0	143	240	124	185	++	Ab	10	8.2
3	0	2	1	2	0	143	250	76	132	+++	Ab	12	7.1
3	1	2	1	3	1	131	236	101	140	++	+	8	6.2
2	0	2	0	1	0	158	213	71	138	+++	Ab	8.8	7.4
						175	238	81	158	+++	+	9.6	6.4

Table 1: (b) Master chart – Group A.

Sr. No.	Reg. No	Age	Sex	Religion	Diet	Prakruti	Prabhut Mutrata		Nakt mutrata		Pipasa vrudhi		Kshud havrud hi		Hastp adtal daha	
							0	45	0	45	0	45	0	45	0	45
1	2563	53	F	Hindu	V+N	Vatpradhan pitta	3	0	2	1	3	1	3	0	1	0
2	2711	55	M	Hindu	V+N	Kaphapradhan Vat	2	1	2	1	1	0	2	1	2	0
3	7063	25	M	Hindu	V+N	Vatpradhan Kaph	2	1	2	1	3	0	3	0	2	0
4	9404	26	M	Hindu	V+N	Vatpradhan pitta	2	0	2	0	2	0	2	0	1	0
5	10362	50	M	Hindu	V+N	Vatpradhan pitta	3	0	3	1	3	1	3	0	1	0
6	10722	30	M	Hindu	V	Vatpradhan pitta	3	0	2	1	1	0	1	0	1	0
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	1	0
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+N	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

Table 2: (a) Master Chart – Group B.

Swedpravrutti		Anustha		BSL				Urine Examination		Hb A1C	
				1st		45th					
0	45	0	45	BT		AT					
2	1	2	0	F	PP	F	PP	1st	45th	BT	AT
2	1	2	1	168	223	99	170	+++	+	10	7.2
1	1	2	1	176	200	89	148	++	Trace	10	7
3	0	2	0	178	258	100	158	++	Trace	8	6
3	1	3	0	169	256	101	135	++	+	8.5	6
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
3	0	3	1	140	248	79	145	+++	Ab	11	7.2

3	1	2	0	150	250	98	148	++	Ab	7.1	6.2
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
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

Table 2: (B) Master Chart – Group B.

Discussion

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

In the case of symptoms Prabhutamutrata, Naktmutrata, Pipasavrudhi, Kshudhavrudhi, Hastpadtal daha, Swedapravrutti and Anutsaha the test has shown insignificant difference between mean differences of Group A and Group B. H_1 is accepted and H_0 is rejected here. It was hence concluded that Nishkatakadi kwath along with tab metformin is effective than Tab Metformin alone to reduce Prabhutamutrata, Naktmutrata, Pipasavrudhi, Kshudhavrudhi, Hastpadtal daha, Swedapravrutti 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 ll 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.

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