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# A comparative clinical trial to evaluate the efficacy of *Darvyadi Kashaya* and *Vidangadi Kashaya* in *Prameha vis-a-vis* Type II Diabetes Mellitus

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## ABSTRACT

**Background:** *Prameha* is a *Mutratripravrutta Vyadhi* which is characterized by *Prabhuta Mutra* and *Avila Mutra*. *Prameha* is considered as a *Daruna Vyadhi* as it involves *Tridosha*, affects *Basti* which is a *Mahamarma*, is *Anushangi* with many *Upadrava*. *Kapha*, *Meda* and *Shareera Kleda* play an important role in its manifestation. This disease has closer resemblance with Type II Diabetes mellitus. In Ayurveda classical texts, various formulations in the form of *Kashaya*, *Ghritha*, *Asava* and *Arishta* have been explained in the context of treatment of *Prameha*. *Darvyadi Kashaya* and *Vidangadi Kashaya* mentioned as *Sarvaprameha Hara Yoga* in *Charaka Samhita* and *Yogaratanakara* respectively are taken up for study in the management of *Prameha vis-a-vis* Type II Diabetes mellitus. **Objective:** To compare the efficacy of *Darvyadi Kashaya* and *Vidangadi Kashaya* in *Prameha vis-a-vis* Type II Diabetes mellitus. **Method:** It was a comparative clinical study involving two groups, Group A and Group B, each consisting of 25 patients. For Group A, *Darvyadi Kashaya* was administered and for Group B, *Vidangadi Kashaya* was administered for 90 consecutive days. **Result:** After completion of treatment, it was observed that glycemic control was considerable in both the groups. *Darvyadi Kashaya* showed slightly better results in *Karapada Daha* and *Prabhuta Mutra* at night. In fresh cases, significant glycemic control was observed compared to treated cases in both the groups. **Conclusion:** It can be concluded from the results that both *Darvyadi Kashaya* and *Vidangadi Kashaya* are equally effective in management of *Prameha vis-a-vis* Type II Diabetes mellitus.

**Key words:** *Kleda*, *Prabhuta Mutra*, *Abaddha Meda*, *Bahudrava Shleshma*, *Insulin*, *Free Fatty Acids*.

## INTRODUCTION

*Prameha* is a *Santarpanajanya Vyadhi* explained in *Brihatrayi* and is considered one among *Ashta Mahagada*.<sup>[1]</sup> In *Prameha* invariably all *Tridosha* are involved along with involvement of *Meda*, *Kleda*, *Rasa*, *Mamsa*, *Rakta*, *Shukra*, *Lasika* and *Oja*. It is considered as a *Chirakaleena Vyadhi* as it affects *Basti* which is a *Mahamarma*, is *Anushangi* i.e., which is recurring in

nature and associated with multiple *Upadrava*. Many features of *Prameha* resemble the features of Diabetes mellitus in terms of *Nidana Panchaka*. Diabetes mellitus is defined as a metabolic disorder of multiple aetiology characterised by chronic hyperglycaemia with disturbances of carbohydrate, fat and protein metabolism resulting from defects in insulin secretion, insulin action or both.<sup>[2]</sup> Sedentary life style, lack of exercise, faulty food habits and improper medication and urbanization precipitate disease.

As of 2019, globally around 422 million people suffer from Diabetes mellitus and 1.6 million deaths are directly attributed to diabetes each year.<sup>[3]</sup> Type II Diabetes mellitus accounts for the vast majority (90%) of Diabetes worldwide. In India, the prevalence rate of Diabetes is around 11.4 % in urban area and around 2.9% in rural area. The average prevalence rate of Type II Diabetes mellitus is around 7.5%.

Current guidelines advocate the comprehensive management of Diabetes mellitus including exercise

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therapy, nutritional therapy, psychosocial care and usage of oral antihyperglycaemic agents such as biguanides, insulin secretagogues, thiazolidinediones, alpha glucosidase inhibitors and insulin regimen to regulate and maintain glycaemic control.<sup>[4]</sup> These therapies aim at lowering the blood sugar levels. Over time, most patients seek for an alternative, natural and safer therapy which help to maintain blood sugar levels and also prevent its progression. Currently, in *Ayurveda*, for the treatment of *Prameha* many purificatory methods, herbomineral formulations, single drug formulations and dietary practices are advocated. *Darvyadi Kashaya*<sup>[5]</sup> and *Vidangadi Kashaya*<sup>[6]</sup> are two such compounds mentioned in the context of *Prameha Chikitsa* in *Charaka Samhita* and *Yogaratanakara* respectively as *Sarvapranehahara Yoga*.

Thus, with the background of theoretical references and research studies on actions of these drugs, this study is undertaken to compare the efficacy of *Darvyadi Kashaya* and *Vidangadi Kashaya* in the management of *Prameha vis-a-vis* Type II Diabetes mellitus.

## OBJECTIVE OF THE STUDY

To compare the efficacy of *Darvyadi Kashaya* with *Vidangadi Kashaya* in the management of *Prameha vis-a-vis* Type II Diabetes mellitus.

## MATERIALS AND METHODS

The materials used in the study were *Darvyadi Kashaya* and *Vidangadi Kashaya*.

### Source of drug and method of preparation

Formulation *Darvyadi kashaya* mentioned in *Charaka Samhita* and *Vidangadi Kashaya* mentioned in *Yogaratanakara* were specifically prepared and procured from S.N. Pandit and Sons Ayurvedic Co. Pvt. Ltd, Mysuru, (a GMP certified pharmacy) for the purpose of study.

### Method of collection of data

#### a) Study design

A double arm open labelled comparative clinical trial with pre and post test design.

#### b) Sample size

Study comprised of 55 registered subjects (27 in Group A and 28 in Group B) out of which 5 were drop outs. The study was completed on 50 subjects with 25 in Group A and 25 in Group B

#### c) Duration of study: 90 days

### Inclusion Criteria

1. Subjects of all gender and age group between 30-60 years were included.
2. Subjects with FBS within 126-170mg/dl and or PPBS within 200-300mg/dl were included.
3. Subjects with HbA1c greater than or equal to 6.5 %
4. Subjects with and without signs and symptoms of *Prameha vis-a-vis* Type II Diabetes Mellitus were included.
5. Both fresh and treated cases were included. Fresh and treated cases included
  - a. Freshly detected and untreated cases of Type II Diabetes Mellitus.
  - b. Established and treated cases of Type II Diabetes Mellitus with chronicity below 5 years who voluntarily discontinue the on-going treatment. Flush out period of 3 days was given before the case is taken.

### Exclusion Criteria

1. Subjects with history of Diabetes Mellitus associated with complications like diabetic nephropathy, retinopathy, infectious wounds, and gangrene and foot ulcers were excluded.
2. Patients with other systemic disorders like congestive cardiac failure, chronic renal failure, uncontrolled hypertension, other endocrinal diseases, infectious conditions and debilitating illness which interfered with the intervention were excluded.
3. Patients of Type II Diabetes Mellitus who were on insulin treatment were excluded.
4. Pregnant and the lactating women were excluded.

5. Subjects on steroids and estrogen replacement therapy were excluded.

### Diagnostic Criteria

Based on WHO Guidelines for diagnosis of Diabetes Mellitus<sup>[14]</sup> which included

1. HbA1c greater than or equal to 6.5%
2. Fasting blood sugar level greater than or equal to 126mg/dl
3. Post prandial blood sugar level greater than or equal to 200mg/dl

### Assessment Criteria

#### Primary assessment parameters

1. Fasting blood sugar and post prandial blood sugar was assessed on day 0, 16<sup>th</sup> day, 31<sup>st</sup> day, 61<sup>st</sup> day and 91<sup>st</sup> day.
2. Hba1c levels of subjects was tested prior and after completion of intervention on day 0 and 91<sup>st</sup> day.
3. Urine sugar – Fasting and Post Prandial will be assessed on day 0, 16<sup>th</sup> day, 31<sup>st</sup> day, 61<sup>st</sup> day and 91<sup>st</sup> day.

#### Secondary Assessment Parameters

Clinical signs and symptoms in symptomatic patients of *Prameha* vis-à-vis Type II Diabetes Mellitus will be assessed using grading score through questionnaire. The following parameters will be considered, graded and scores will be given.

#### 1. *Prabhuta Mutrata* (day time)

- a) Frequency of micturition 3-5 times/day - 0
- b) Frequency of micturition -6-8 times/day - 1
- c) Frequency of micturition-9-11 times/day - 2
- d) Frequency of micturition more than 11 times/day - 3

#### 2. *Prabhuta Mutrata* (night time)

- a) Does not wake up for micturition - 0
- b) Wakes up once for micturition - 1
- c) Wakes up twice for micturition - 2

- d) Wakes up more than 2 times for micturition - 3

#### 3. *Kshutadhikya* (polyphagia)

- a) Feels hunger at next *Annakala* only - 1
- b) Feels hunger for once in between *Annakala* - 2
- c) Feels hunger for more than twice in between *Annakala* - 3
- d) Feels hunger always - 4

#### 4. *Pipasa Adhikya* (polydypsia)

- a) Frequency of consumption of water due to thirst – 4-6 times/day - 0
- b) Frequency of consumption of water due to thirst-7-9 times/day - 1
- c) Frequency of consumption of water due to thirst 10-12 times/day - 2
- d) Frequency of consumption of water due to thirst more than 12 times/day - 3

#### 5. *Dourbalya* (weakness)

- a) Can do routine physical activities - 0
- b) Can do moderate physical activities with difficulty - 1
- c) Can do only mild physical activities with difficulty - 2
- d) Cannot even do mild physical activities - 3

#### 6. *Karapada Daha* (burning sensation of hands and feet)

- a) No burning sensation in feet and/or hands - 0
- b) Mild burning sensation in feet and/or hands - 1
- c) Moderate burning sensation in feet and/or hands - 2
- d) Severe burning sensation in feet and/or hands - 3

#### 7. *Gurugatrata* (feeling of heaviness)

- a) No feeling of heaviness of the body - 0
- b) Mild feeling of heaviness of the body which does not hamper routine work - 1

- c) Moderate feeling of heaviness of the body which hampers routine work occasionally - 2
- d) Severe feeling of heaviness of the body which hampers routine work always - 3

#### Assessment Schedule

1. Fasting blood sugar and post prandial blood sugar was assessed on day 0, 16<sup>th</sup> day, 31<sup>st</sup> day, 61<sup>st</sup> day and 91<sup>st</sup> day.
2. HbA1c levels of subjects was tested prior and after completion of intervention on day 0 and 91<sup>st</sup> day.
3. Urine sugar - Fasting and Post Prandial was assessed on day 0, 16<sup>th</sup> day, 31<sup>st</sup>day, 61<sup>st</sup> day and 91<sup>st</sup> day

#### Statistical Methods

Chi square test, Wilcoxon signed rank test, independent t test and descriptive statistics were applied and was analysed using SPSS for windows software.

#### Intervention

**Group A** - Oral administration of 25ml of *Darvyadi Kashaya* with equal quantity of warm water in two equally divided doses during morning and night before food for 90 consecutive days of intervention.

**Group B** - Internal administration of 25ml of *Vidangadi Kashaya* with equal quantity of warm water in two equally divided doses during morning and night before food for 90 consecutive days of intervention.

#### OBSERVATIONS

In the present study it was observed that *Prameha* was common in the age group of 41-50 years (43.6%), males (72.7%) were more affected than females (27.3%), it had higher incidence in people with desk jobs (26.7%) and homemakers (24.4%) followed by farmers (17.8%) and laborers (17.8%). Incidence was more in lower middleclass population (82.20%) and in people with mixed diet (74.5%), irregular dietary habits (56.3%), intake of milk, curd and its products (68.6%). It was observed that improper lifestyle habits such as lack of exercise (90.9%), habit of daysleep (61.8%) and influence of psychological factors such as stress, anger

may have precipitated the disease. Increased BMI and positive family history which are considered as risk factors were also observed in these subjects. Maximum patients in the study were freshly treated cases with a history of Diabetes mellitus since 1-2 years.

#### RESULTS

A total of 55 subjects were registered for the study, there were 5 dropouts. The results were obtained by assessing 50 subjects who have completed the study.

##### Result on *Prabhuta Mutrata* (Daytime)

Highly statically significant reduction in frequency of micturition was observed in both *Darvyadi kashaya* group with  $p= 0.000$  and *Vidangadi kashaya* group with  $p= 0.000$ . The change in frequency of micturition in between the two groups was statistically non-significant with a P value 0.556.

##### Result on *Prabhuta Mutrata* (night time)

Highly statically significant reduction in frequency of micturition (night time) was observed in both *Darvyadi kashaya* group with  $p= 0.000$  and *Vidangadi kashaya* group with  $p= 0.000$ . The change in frequency of micturition in between the two groups was statistically significant with a P value 0.040.

##### Result on *Kshutadhikhya*

Highly significant reduction in *Kshutadhikhya* was observed in both *Darvyadi kashaya* group  $p= 0.000$  and *Vidangadi Kashaya* group with  $p= 0.000$ . In between the groups, non-significant result was obtained with  $p= 0.302$ .

##### Result on *Pipasadhikhya*

Significant reduction in *Pipasadhikhya* was observed in both *Darvyadi Kashaya* group  $p= 0.000$  and *Vidangadi Kashaya* group with  $p= 0.000$ . Non-significant result with p value 0.317 was obtained in between the groups.

##### Result on *Dourbalya*

Highly significant reduction in *Dourbalya* was observed in both *Darvyadi Kashaya* group  $p= 0.000$  and *Vidangadi Kashaya* group with  $p= 0.000$ . On comparing

the effect in between the groups, non-significant result was obtained with  $p=0.428$ .

#### Result on Gurugatrata

Highly significant reduction in *Gurugatrata* was observed in both *Darvyadi Kashaya* group  $p=0.000$  and *Vidangadi Kashaya* group with  $p=0.000$ . The effect in between the groups on parameter *Gurugatrata*, non-significant result was obtained with  $p=0.077$ .

#### Result on Karapada Daha

Significant reduction in *Karapada Daha* was observed in both *Darvyadi Kashaya* group  $p=0.000$  and *Vidangadi Kashaya* group with  $p=0.000$ . There was significant difference observed between the groups with  $p=0.020$ .

#### Result on Fasting blood sugar (FBS)

Significant reduction in FBS was observed in both *Darvyadi Kashaya* group  $p=0.000$  and *Vidangadi Kashaya* group with  $p=0.000$ . In between the groups, no significant difference was obtained with  $p=0.136$ .

#### Result on Post prandial blood sugar (PPBS)

Highly statistically significant reduction in PPBS was observed in both *Darvyadi Kashaya* group  $p=0.000$  and *Vidangadi Kashaya* group with  $p=0.000$ . However, on comparing the effect in between the groups, no significant difference was obtained with  $p=0.458$ .

#### Result on Fasting urine sugar (FUS)

Significant reduction in FUS was observed in both *Darvyadi Kashaya* group  $p=0.000$  and *Vidangadi Kashaya* group with  $p=0.000$ . No significant difference was observed in between the groups with  $p=0.058$ .

#### Result on Postprandial urine sugar (PPUS)

Significant reduction in PPUS was observed in both *Darvyadi Kashaya* group  $p=0.000$  and *Vidangadi Kashaya* group with  $p=0.000$ . However, on comparing the effect in between the groups, no significant difference was obtained with  $p=0.452$ .

#### Result on HbA1c

Significant reduction in HbA1c was observed in both *Darvyadi Kashaya* group  $p=0.000$  and *Vidangadi*

*Kashaya* group with  $p=0.000$ . However, on comparing the effect in between the groups, no significant difference was obtained with  $p=0.298$ .

**Table 1: Showing results of overall assessment between the groups on Objective parameter**

Parameter	Fasting blood sugar (FBS)		Post Prandial Blood Sugar (PPBS)		Fasting Urine Sugar (FUS)		Post Prandial Urine Sugar (PPUS)		HbA1c	
	Trial	Control	Trial	Control	Trial	Control	Trial	Control	Trial	Control
Pre-Measurement	3.8	4.96	5.4	5.68	1.7	1.76	1.4	0.28	2.5	2.92
Post-Measurement	0.2	0.56	0.2	0.32	0.4	0.76	1.4	0.40	1.8	2.08

## DISCUSSION

*Prameha* is a *Mahagada* in which *Bahudrava Shleshma* is *Dosha Vishesha* and *Bahu Abaddha Meda* which has similarities with the disease Type II Diabetes mellitus in terms of *Nidana Panchaka* and *Chikitsa*. The study reveals that intake of *Snigdha, Meda, Guru Ahara* which is the prime *Nidana* for manifestation of *Prameha* can be understood in terms of high calorie, high glycemic index and high fat diet. The combination of *Aharaja Nidana* and *Viharaja Nidana* play a role in manifestation and current lifestyle habits which include the sedentary habit with intake of junk food, fried foods justify the same.

Majority of the subjects had slightly higher BMI and could be categorized as overweight which acts as a major risk factor for manifestation of Diabetes mellitus. Thus, it can be inferred that obese or overweight individuals have a higher risk of developing Diabetes mellitus. *Abaddha Meda* which is circulating in the *Shareera* and manifests *Prameha* can be understood in terms of circulating free fatty acids.

In pathogenesis of *Prameha*, *Kapha* is the main *Dosha* and *Meda* and *Kleda* are the main *Dushya* involved. Gradually all the other *Dushya* also get involved and

leads to *Dhatu Kshaya*. Hence, in management of *Prameha*, therapeutics having *Kapha Meda Hara*, *Kleda Shoshana*, *Agni Deepana* and *Rasayana* effect have to be selected.

#### Probable mode of action of *Darvyadi Kashaya*

*Darvyadi Kashaya* contains *Darvi* (*Daruharidra*), *Devadaru*, *Musta* and *Triphala*. *Darvi* is having *Tiktarasa*, *Laghu Guna* with *Ushna Veerya* and *Katu Vipaka* and is one among *Lekhaneeya Gana Dravya*. It has the action of *Kapha Pitta Shamana*.<sup>[7]</sup> *Darvi Kashaya* is mentioned as the choice of drug in *Pishta Meha*. *Musta*<sup>[8]</sup> is also having *Tikta*, *Kashaya*, *Katu Rasa* with *Laghu Ruksha Guna*, *Katu Vipaka* and *Sheeta Veerya*. It is also *Pitta Kapha Shamaka* and is included in *Lekhaniya Varga* and *Trushnanigrahana Varga* in *Charaka Samhita*. *Musta* is *Deepana*, *Pachana* and is having *Dahahara* action.

Extract of *Cyperus rotundus* rhizomes have proven to have antidiabetic properties by increasing antioxidant process, stimulating insulin release, blocking glucagon secretion from  $\beta$  cells. It has also succeeded to normalize lipid levels and improve liver and kidney functions.<sup>[9]</sup>

*Triphala* is having *Laghu Ruksha Guna* and is *Tridosha Shamaka*. It has *Chakshushya*, *Medohara*, *Vatanulomana*, *Dahahara* and *Rasayana* action. *Haritaki* (*Terminlaia chebula*) is proven of having immediate hypoglycemic activity and long-term administration led to significant decrease in fasting glucose levels suggesting a novel insulin secretagogue like action. Chronic administration of *Amalaki* led to fall in fasting blood glucose levels, increase in weight and suggests a novel insulin sensitizing effect. *Vibhitaki* has an effect on post prandial blood glucose levels by decreasing intestinal glucose absorption.<sup>[10]</sup>

Considering the properties and actions of individual drugs, it can be considered that *Darvyadi Kashaya* is having *Tikta*, *Kashaya Katu Rasa* with *Laghu Ruksha Guna* and *Ushna Veerya*.

In the pathogenesis of *Prameha*, increased *Kleda* leading to *Prabhuta Mutrata* is the cardinal feature. *Darvyadi Kashaya* by virtue of its *Tikta*, *Kashaya* and

*Katu Rasa* does *Kleda Shoshana*, *Lekhana*, and also *Shoshana* of *Meda*, *Vasa*, *Majja*, *Lasika* and *Sweda*. By *Laghu Ruksha Guna* and *Ushna Veerya* it does *Kapha Shamana* which is the *Pradhana Dosha*. *Devadaru*, *Musta* and *Triphala* are having *Lekhana* and *Medohara Karma* which help in reducing *Meda* and *Kapha*. Research studies have shown that these drugs have antihyperlipidemic activity. *Musta* may also reduce *Trishna* which is a major feature in *Prameha*. *Triphala* by its *Rasayana* effect reduces *Dourbalya* and provides *Bala* to *Shareera*. It is also helpful in reducing the symptoms such as *Klaibya* and *Karapada Daha*. *Triphala* is proven to have antioxidant, anti-inflammatory, immunomodulating effect and clinical studies have shown that it is also helpful in sexual dysfunction, diabetic neuropathy and retinopathy conditions. Most of the drugs are having *Pramehahara* as direct indication therefore it can be considered as *Vyadhi Pratyanyika Dravya*. Even research studies show that the drugs are having antihyperglycemic effect.

#### Probable mode of action of *Vidangadi Kashaya*

*Vidangadi Kashaya* contains *Vidanga*, *Nagara*, *Haridra*, *Gokshura* and *Yashtimadhu*. *Vidanga* has *Katu*, *Kashaya Rasa* with *Laghu*, *Ruksha*, *Teekshna Guna* and *Ushna Virya*. It is *Kaphavatahara* with *Deepana*, *Medohara* and *Mehahara Karma*.<sup>[11]</sup> Tannins present in *Embelia ribes* have shown antihyperglycemic action by increasing insulin assisted glucose uptake, which indicates there was increase in insulin sensitivity. Tannins and saponins of *Embelia ribes* play a major role in reducing oxidative stress associated with diabetes probably by scavenging free radicals and preventing depletion of endogenous antioxidant.<sup>[12]</sup>

*Nagara*<sup>[13]</sup> has *Katu Rasa*, *Laghu Snigdha Guna*, *Ushna Veerya*, *Madhura Vipaka*. It is *Vatakaphahara* and is considered under *Trishna Nigrahana Varga*. It is having *Deepana*, *Pachana* and *Vrishya Karma*. Ginger according to research studies exerts its antidiabetic effects through restorative effects on pancreatic  $\beta$  cells, increasing insulin sensitivity, peripheral utilization of glucose. Other mechanisms include inhibition of hepatic glucose production and inhibition of carbohydrate metabolism.<sup>[14]</sup>

*Haridra*<sup>[15]</sup> has *Tikta, Katu Rasa* with *Ruksha Laghu Guna* and *Katu Vipaka* and *Ushna Veerya*. It is *Kapha Pitta Shamaka* and is considered as *Agrya* for *Prameha*. It is included under *Lekhaneya Varga*. Curcumin, one of the main constituents of *Haridra* has high levels of polyphenols and strong antioxidant activity. Curcumin can promote AMPK activation and glucose uptake with increased insulin sensitivity in muscle cells.<sup>[16]</sup>

*Yashtimadhu*<sup>[17]</sup> has *Madhura Rasa, Guru Snigdha Guna, Madhura Vipaka* and *Sheeta Veerya*. It is having *Vata Pitta Shamaka Karma* and is mentioned in *Mutra Virajaneeya Varga*. It is *Balya* and *Trishnahara*. *Glycyrrhiza glabra* extract shows inhibition of  $\alpha$  glucosidase and  $\alpha$  amylase inhibitory activity leading to reduction in disaccharide hydrolysis which has beneficial effect on glycemic index control and can reduce the incidence of post prandial hyperglycemia.<sup>[18]</sup>

*Gokshura*<sup>[19]</sup> has *Madhura Rasa, Guru Snigdha Guna* and *Ushna Veerya* and *Madhura Vipaka*. It is *Tridosha Shamaka* and is included in *Mutravirechaniya Varga*. It has *Basti Shodhaka, Balya, Deepana, Pramehahara* action. *Tribulus terrestris* can significantly inhibit gluconeogenesis, influence glycometabolism and reduce blood sugar levels. Saponins present in *Tribulus terrestris* show reduction in serum glucose and inhibit hepatic gluconeogenesis. It also delays the absorption of glucose by inhibiting  $\alpha$  glucosidase in small intestine and lowering post prandial glucose.<sup>[20]</sup>

Considering the properties and actions of individual drugs, it can be considered that *Vidangadi Kashaya* is *Katu, Kashaya Rasa, Ushna Veerya* and *Katu Vipaka* with *Medohara, Lekhana* and *Vata Kaphahara* properties.

In *Prameha* pathogenesis, *Vidanga* and *Haridra* by *Medohara* and *Lekhana Karma* and also by *Tikta, Katu Rasa* may reduce *Meda, Kapha* and *Kleda*. *Nagara* and *Yashtimadhu* by virtue of *Trishnanigrha Karma* may reduce the symptoms of *Pipasadhikyata*. *Gokshura* by virtue of its *Basti Shodhana* effect may remove the *Dosha* and *Dushya* which have taken *Sthana Samsharaya* in *Basti*. *Yashtimadhu* by virtue of its

*Mutravirajaneeya Karma* may be helpful in *Pittaja Prameha* wherein there are changes in color of urine.

*Vidangadi Kashaya* may be beneficial in *Sthoola Pramehi* as *Vidanga* and *Haridra* both have *Lekhana* and *Medohara Karma* and studies have shown that they have antihyperlipidemic action by increasing levels of leptin and adiponectin and thus reducing the circulating free fatty acids. The drugs such as *Haridra* and *Vidanga* are having direct indication in *Prameha* and researches have also proven that all the drugs have antihyperglycemic activity, anti-oxidant activity and anti-inflammatory activity.

## CONCLUSION

*Prameha* is one among *Ashta Mahagada* which involves *Tridosha* and *Dushya* such as *Meda, Kleda, Mamsa, Rasa, Rakta, Vasa, Lasika, Shukra* and *Oja* and presents with *Prabhuta Avila Mutrata* and *Sarvadaihika Lakshana*. The disease has resemblance with Type II Diabetes mellitus. Group A and Group B showed statistically significant result with no difference in between the groups on subjective parameters such as *Prabhuta Mutrata* (Daytime), *Kshutadhikhya, Pipasadhikhya, Gurugatarata* and *Dourbalya* with  $p < 0.001$ . Though both the groups showed significant result on the symptom *Prabhuta Mutrata* (night) there was significant difference in results between the groups with  $p = 0.040$ . On the parameter, *Karapada Daha*, both the groups showed significant result, however in between the groups significant difference was obtained with  $p = 0.020$ . Both the groups showed statistically significant result without difference in between the groups on objective parameters. Considering the above facts, it can be concluded that both *Darvyadi Kashaya* and *Vidangadi Kashaya* have statistical and clinical significance and are equally effective in management of *Prameha* vis-a-vis Type II Diabetes Mellitus.

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