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EFFECT OF PRIYANGWADI GHRITA AND MOORCHITA GHRITA FOR VIRECHANA IN STHULA MADHUMEHI W.S.R TO OBESE NIDDM – A COMPARATIVE CLINICAL STUDY

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ABSTRACT

Madhumeha comes under the category of Vataja Prameha and the patients of Prameha are further sub-classified as Sthula and Krisha. The treatment of Madhumeha is served by the dual approach of Shodhana and Brimhana in Sthula and Krisha patients respectively. Madhumeha can be co-related to Diabetes Mellitus and Sthula Madumehi to Obese NIDDM. Diabetes Mellitus, a chronic metabolic disorder is the current burning problem throughout the world affecting larger population which needs special attention as it is one of the leading causes of Morbidity and Mortality. Moorchita Ghrita is generally employed for Shodhananga Sneha irrespective of the disease where as Priyangwadi Ghrita explained by Sushruta, is specifically indicated in Prameha. The present study is intended to compare the efficacy of Shodhananga Snehapana using Moorchita Ghrita and Priyangwadi Ghrita followed by Virechana in Sthula Madhumehi. This is a comparative clinical study with pretest and posttest design. 40 patients diagnosed as Sthula Madhumehi were selected and assigned randomly into two Groups of 20 patients each. In Group A the patients were given Shodhananga Snehapana with Moorchita Ghrita followed by Virechana and in Group B with Priyangwadi Ghrita followed by Virechana. The subjective and objective parameters were assessed and statistically analyzed. The result obtained was statistically insignificant between the Groups therefore, effect of treatment was almost same in both the groups. All the patients responded favorably to the treatment in both groups, but with Priyangwai ghrita the therapy has shown better relief in most of the signs and symptoms of the disease.

KEYWORDS: Sthula Madhumehi, Virechana, Priyangwadi Ghrita, Obese NIDDM.

INTRODUCTION

Life of the modern man pose a diverse situation where on one hand the average life expectancy has increased and on the other; the state of health is facing a new threat every day in the form of newer diseases endangering the Life. Thus, today's scenario of health can very well be phrased as "Man has added Years to his LIFE but is somehow missing LIFE in those Years". Among many dreadful conditions arising because of modern day living, Diabetes mellitus is a metabolic disorder considered as one of the important enemies of mankind. Diabetes and its complications are a major threat to psychosomatic and social health of Humans.

Diabetes mellitus in Ayurveda is covered under the wide spectrum of Prameha. The Prameha patients are classified into two types, i.e. Sthula Pramehi and Krisha Pramehi,[1] or Santarpanajanya and Apatarpanajanya Pramehi or Avaranajanya and Dhatukshayajanya Prameha. However, Sthula Pramehi (or) Avaranjanya Madhumeha has similarity with Obese Type-2 Non-Insulin Dependent Diabetes Mellitus (NIDDM).

Prameha is a Tri doshaja Vyadhi, mainly with vitiation of Kapha, Meda and Shareera Kleda and Madhumeha (Vataja Prameha) renders the condition more dreadful with association of Vata. Acharyas Charaka and Sushrutha have mentioned Shodhana as the line of treatment for Sthula Pramehi,[1] whereas Vagbhata has mentioned that Vamana and Virechana are the prime treatment in Prameha as it does Kleda shamana.[2] Hence for the samprapti vighatana of Madhumeha by removing the vitiated doshas, Shodhana in the form of Virechana was selected in the present study. Snehapana as a Purvakarma of Virechana also plays an important role in the treatment. The body will be destroyed easily like a dried wood if Shodhana is done without proper Snehana. The aim of Abhyantara Snehapana is to prepare the body for Shodhana karma i.e. the doshas situated in Shakha are to be brought to Koshta, so that they can easily be expelled out through the adho marga. Moorchita Ghrita is generally employed for Shodhananga Sneha irrespective of the disease where as Priyangwadi Ghrita is specifically mentioned in Prameha chikitsa by Sushruta.[3] Hence the intention of the present study is to

assess the effect of Shodhananga Snehapana and comparative effect of Moorchita Ghrita and Priyangwadi Ghrita followed by Virechana in the management of Sthula Madhumehi. Priyangwadi gana dravyas are enlisted by Sushruta as follows, Priyagu, Lajjalu, Dhataki, Punnaga, Nagapushpa, Chandana, Kuchandana, Mocharasa, Daruharidra, Kumbhika, Srotoja, Padma kesara, Manjishta, Deerghamula.[4]

AIMS AND OBJECTIVES
1. To evaluate the efficacy of Moorchita Ghrita as Shodhananga Sneha for Virechana in Sthula Madhumehi.
2. To evaluate the efficacy of Priyangwadi Ghrita as Shodhananga Sneha for Virechana in Sthula Madhumehi.
3. To compare the efficacy of both the groups.

MATERIALS AND METHODS
Source of data: 40 patients of Sthula Madhumeha were selected randomly from OPD and IPD of SKAMC Hospital & Research Centre, Bangalore.

Method of collection of data
- This is a comparative clinical study with pretest and posttest design where in 40 diagnosed Sthula Madhumeha patients of either sex were randomly assigned into two groups each comprising of 20 patients.
- Following statistical methods were employed for the data collected – Paired t test and Unpaired t test.

Diagnostic Criteria
- FBS >126mg/dl
- PPBS> 180mg/dl
- RBS > 200mg/dl
- BMI > 25

Inclusion Criteria
- Patients with signs & symptoms of Sthula Madhumeha.
- Patients with signs and symptoms of Obese NIDDM.
- Patients of age group 30-60 years of either sex.
- Patients with Madhumeha having BMI >25
- Patients with blood sugar levels FBS >126 mg/dl, PPBS >180 mg/dl, RBS > 200mg/dl

Exclusion Criteria
- Patients unfit for Snehapana.
- Patients unfit for Virechana.
- Patients with FBS>180mg/dl, PPBS> 240mg/dl
- Patients with Juvenile Diabetes, Gestational Diabetes, IDDM and any other systemic diseases which interfere in the course of treatment.

Intervention
- 40 patients of Sthula Madhumeha (NIDDM) were selected and divided randomly into two groups, Group A and Group B.
- Group A- patients were given Shodhananga Snehapana with Moorchita Ghrita followed by Virechana.
- Group B- patients were given Shodhananga Snehapana with Priyangwadi Ghrita followed by Virechana.

Purva karma
- Chitrakadi vati was given two tablets twice a day with Luke warm water before food for 3 days, for the purpose of Deepana Pachana.
- Snehapana was given with Moorchita ghrita/ Priyangwadi ghrita.
- Sarvanga Abhyanga with Moorchita Tila taila and Mrudu Bashpasweda was given for 3days.

Pradhana karma – Virechana was given with Trivruth Lehya followed by ushna jala pana, dose depending on the koshta of the patient.

Pashchat karma – Samsarjana Krama was advised according to shuddhi.
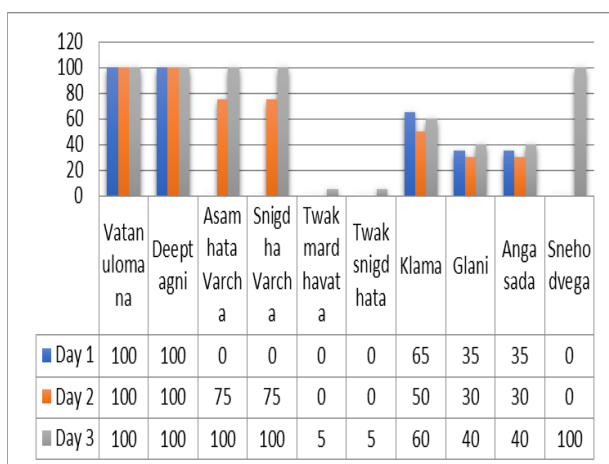
Assessment Criteria
The following Subjective and Objective parameters were assessed using different grading – before Treatment, after Snehapana and after Samsarjana Krama.
- Prabhuta Mutrata
- Avila Mutrata
- Mutra Madhurya (FUS, PPUS)
- Tanu Madhurya (FBS, PPBS)
- Daurbalya
- Sthoulya – BMI = Weight in Kg / Height in m2

OBSERVATIONS
Among 40 patients of Sthula Madhumeha registered for the study, maximum (70%) patients were of age group of 41-60 years, (67.5%) were males, 95% were Hindus, 100% were married, graduates (50%), (50%) were from upper middle class, 87.5% patients were from urban habitat, 22.5% were housewives. Maximum of 47.5% were having the family history of Madhumeha, 45% had chronicity less than one year, 60% were taking mixed diet, 55% were overweight. Maximum of 47.5% were of Kapha Pitta Prakruti, 95%(38) were of Madhyama Sara, 75%(30) were having Madhyama Samhanana, 82.5%(33) were Vyamishra Satmya, 65%(26) were taking Mixed diet, 70%(28) had Madhura rasa predominant in their diet, Adhyashana was observed in 42.5%(17), 97.5%(39) were Madhyama Satva, 75%(30) of the patients were of Madhyama Pramana, 75%(30) had Madhyama abhyavaharana shakti, 87.5%(35) had Madhyama Jarana shakti, 70%(28) had Madhyama Vyayama Shakti and Vaya of all the individuals was Madhyama (100%).

Observations in Samyak snigdha lakshanas

	Vatan uloma na	Deept agni	Asam hata Varch a	Snigd ha Varch a	Twak mard havat a	Twak snigd hata	Klama	Glani	Anga sada	Sneho dvega
Day 1	100	100	0	0	0	0	65	35	35	0
Day 2	100	100	75	75	0	0	50	30	30	0
Day 3	100	100	100	100	5	5	60	40	40	100

Appearance of Samyak Snigdha Lakshana in Group A.

	Vatan uloma na	Deept agni	Asam hata Varch as	Snigd ha Varch as	Twak mard havat a	Twak snigd hata	Klama	Glani	Anga sada	Sneho dvega
Day 1	100	100	0	5	0	0	45	35	30	0
Day 2	100	95	55	55	0	0	45	40	35	0
Day 3	100	95	100	100	55	55	90	75	65	100

Appearance of Samyak Snigdha Lakshana in Group B.

Vatanulomana was noticed in 100% patients on all 3days in Group A and Group B. **Deeptagni** was seen in all 40 patients in Group A on all three days, 100%, 95% and 95% patients in Group B on first, second and third day respectively. **Snigdha varchas** was not seen on the first day of Snehapana in Group A and was seen in 75% and 100% patients in Group A on the second and third day, 5% on first, 55% on second and 100% patients on third day in Group B. 80% and 100% patients had **Asamhata varchas** in Group A and 50% and 100% patients had this lakshana in Group B on the second and third day respectively. **Twak mardavata and snigdhata** - This was seen in only 5% patients in Group A and 55% patients in Group B on the third day. **Klama** - was observed in 65% on first day, 50% on second day and 60% patients on third day in Group A, 45% on first day, 45% on second day and 90% patients on third day in Group B. **Glani** - was observed in 35% on first day, 30% on second day and 40% patients on third day in Group A, 35% on first day, 40% on second day, and 75% patients on third day in Group B. **Anga sada** - This was seen in 35% on first day, 30% on second day and 40% patients on third day in Group A, 30% on first day, 35% on second day and 65% patients on third day in Group B. **Snehodvega** - this was observed in all the Volunteers (100%) in both groups on the third day.

Observations on Virechana
The mean duration for onset of vega in Group A is 76.75mins and in group B is 79.5mins. The mean duration of complete Virechana was 392.7mins in Group A and in Group B it was 474mins. The average number of vegas in Group A is 9.45 and in Group B is 10.3. In both the groups 70% patients had Kaphanta and remaining 30% had Pittanta. In Group A 95% (19) patients had Samyak Virechana and 5% (1) patient had Ayoga where as in Group B all 100% (20) patients had Samyak yoga.

Data on Virechana in Group A

Patient Name	Vega Onset Time (mins)	Duration of Vega (mins)	Number of Vega	Antiki Lakshana	S/A/Ati yoga
1	50	540	9	Kaphanta	S
2	45	480	10	Kaphanta	S
3	95	540	12	Kaphanta	S
4	45	720	15	Kaphanta	S
5	170	420	6	Pittanta	S
6	150	300	5	Pittanta	S
7	60	540	13	Pittanta	S
8	75	660	14	Kaphanta	S
9	90	390	8	Pittanta	S
10	100	420	12	Kaphanta	S
11	60	420	10	Kaphanta	S
12	60	360	6	Kaphanta	S
13	45	360	13	Kaphanta	S
14	70	420	11	Kaphanta	S
15	90	420	9	Pittanta	S

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16	105	780	14	Kaphanta	S
17	45	720	15	Kaphanta	S
18	100	420	9	Kaphanta	S
19	95	390	8	Pittanta	S
20	40	180	7	Kaphanta	S
Mean	79.5	474	10.3		

Data on Virechana in Group B

Patient Name	Vega Onset Time (mins)	Duration of Vega (mins)	Number of Vega	Antiki Lakshana	S/A/Ati yoga
1	90	270	9	Kaphanta	S
2	30	450	18	Kaphanta	S
3	45	345	5	Pittanta	S
4	75	165	5	Pittanta	S
5	60	390	13	Kaphanta	S
6	90	600	12	Kaphanta	S
7	70	360	8	Kaphanta	S
8	105	420	15	Kaphanta	S
9	120	420	12	Kaphanta	S
10	125	360	0	Pittanta	S
11	70	510	9	Kaphanta	A
12	30	360	6	Pittanta	S
13	50	480	10	Kaphanta	S
14	90	570	12	Kaphanta	S
15	105	54	10	Kaphanta	S
16	50	540	16	Kaphanta	S
17	105	360	7	Pittanta	S
18	50	360	8	Pittanta	S
19	70	420	8	Kaphanta	S
20	105	420	6	Kaphanta	S
Mean	76.75	392.7	9.45		

RESULTS

1. Effect of Treatment on Prabhuta Mutrata Between the Groups

	Mean		Unpaired 't' test					Remarks
	Group	Mean	S.D	S.E	PSE	't'value	P	
BT	A	1.15	0.67082	0.1500	0.2150	1.6286	0.1116	NS
	B	1.5	0.68824	0.1539				
AS	A	0.85	0.58714	0.13135	0.1885	0.0611	0.2953	NS
	B	1.05	0.6048	0.1353				
AV	A	0.3	0.47016	0.10518	0.1864	1.0730	0.29	NS
	B	0.5	0.68824	0.1539				
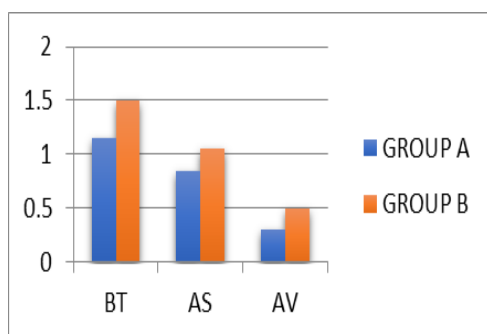
The effect of treatment on Prabhuta mutrata in Group A and Group B after Snehapana and after Virechana was statistically insignificant with p value >0.05.

GROUP A

	Mean		Paired 't' test					Remarks
	B.T	A.T	M.D	S.D	S.E	't'value	P	
BT-AS	1.15	0.85	0.3	0.64051	0.1432	2.8536	0.0102	SS
BT-AV	1.15	0.3	0.85	0.71566	0.1600	7.7679	0.0001	HS

Group A: Before treatment, the mean value was 1.15 and after Snehapana the mean value reduced to 0.85 which was statistically significant with p value <0.05. After Virechana, the mean value further reduced to 0.3 which was statistically very highly significant with p value <0.001

Group B

	Mean		Paired 't' test					Remarks
	B.T	A.T	M.D	S.D	S.E	't'value	P	
BT-AS	1.5	1.05	0.45	0.6788	0.1518	3.9428	0.0009	HS
BT-AV	1.5	0.5	1	0.8473	0.1895	13.784	0.0001	HS

Group B: Before treatment, the mean value in Group B was 1.5 and after Snehapana the mean value reduced to 1.05 which was statistically very highly significant with p value <0.001. After Virechana, the mean value further reduced to 0.5 which was statistically very highly significant with p value <0.001.
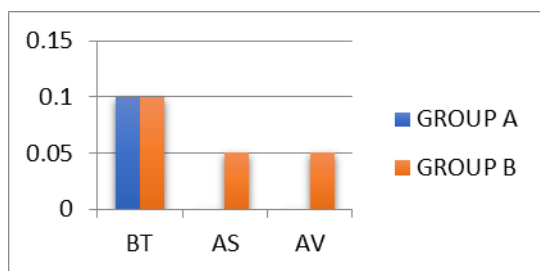
1. **Effect of Treatment on Avila Mutrata Between The Groups.**

	Mean		Paired 't' test				Remarks
	Group	Mean	S.D	S.E	't'value	P	
BT	A	0.1	0.3077	0.06885	0	1	NS
	B	0.1	0.3077	0.06885			
AS	A	0	0	0	1	0.3236	NS
	B	0.05	0.2236	0.05002			
AV	A	0	0	0	1	0.3236	NS
	B	0.05	0.2236	0.05002			

The effect of treatment on Avila mutrata in Group A and Group B after Snehapana and after Virechana was statistically insignificant with p value >0.05.

GROUP A

	Mean		Paired 't' test					Remarks
	B.T	A.T	M.D	S.D	S.E	't'value	P	
BT-AS	0.1	0	0.1	0.2207	0.0492	1.4530	0.1625	NS
BT-AV	0.1	0	0.1	0.2207	0.0492	1.4530	0.1625	NS

Group A: Before treatment, the mean value was 0.1 and after Snehapana there was no change in the mean value which was statistically insignificant with p value >0.05. After Virechana, the mean value reduced to 0 which was also statistically insignificant with p value >0.05.
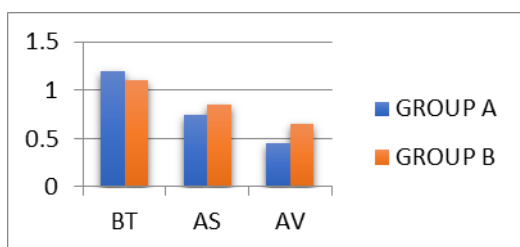
GROUP B

	Mean		Paired 't' test					Remarks
	B.T	A.T	M.D	S.D	S.E	't'value	P	
BT-AS	0	0	0	0.2667	0	0	0	NS
BT-AV	0	0	0	0.2667	0	0	0	NS

Group B: Before treatment, the mean value was 0.1 and after Snehapana the mean value reduced to 0.05 which was statistically insignificant with p value >0.05. After Virechana, the mean value remained the same which was also statistically insignificant with p value >0.05.

2. **Effect of Treatment on FBS Between The Groups.**

	Mean		Paired 't' test					Remarks
	Group	Mean	S.D	S.E	PSE	't'value	P	
BT	A	1.2	0.89442	0.2000	0.2666	0.3751	0.7096	NS
	B	1.1	0.78806	0.17630				
AS	A	0.75	0.71635	0.1602	0.2529	0.3954	0.6947	NS
	B	0.85	0.87509	0.1957				
AV	A	0.45	0.51041	0.1141	0.2147	0.9319	0.3572	NS
	B	0.65	0.81272	0.18181				

The effect of treatment on FBS in Group A and Group B after Snehapana and after Virechana was statistically insignificant with p value >0.05.

GROUP A

	MEAN		Paired 't' test					Remarks
	B.T	A.T	M.D	S.D	S.E	't'value	P	
BT-AS	1.2	0.75	0.45	0.8316	0.1860	2.6509	0.0158	SS
BT-AV	1.2	0.45	0.75	0.8129	0.1818	5.2517	0.0001	HS

Group A: Before treatment, the mean value in Group A was 1.2 and after Snehapana the mean value reduced to 0.75 which was statistically significant with p value >0.05. After Virechana, the mean value further reduced to 0.45 which was statistically very highly significant with p value <0.001.
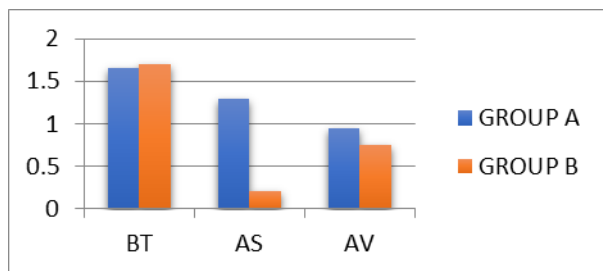
GROUP B

	Mean		Paired 't' test					Remarks
	B.T	A.T	M.D	S.D	S.E	't'value	P	
BT-AS	1.1	0.85	0.25	0.8316	0.1860	1.4217	0.1713	NS
BT-AV	1.1	0.65	0.45	0.8223	0.1839	2.6509	0.0158	SS

Group B: Before treatment, the mean value was 1.1 and after Snehapana the mean value reduced to 0.85 which was statistically insignificant with p value >0.05. After Virechana, the mean value further reduced to 0.65 which was statistically significant with p value <0.05.

3. **Effect of Treatment on PPBS Between The Groups.**

	Mean		Unpaired 't' test				Remarks
	Group	Mean	S.D	S.E	't'value	P	
BT	A	1.65	1.0399	0.2326	0.1888	0.8515	NS
	B	1.7	0.57124	0.12779			
AS	A	1.3	0.92338	0.20657	0.3478	0.7298	NS
	B	1.2	0.89442	0.20009			
AV	A	0.95	0.99868	0.22341	0.6817	0.4995	NS
	B	0.75	0.85069	0.19031			

The effect of treatment on PPBS in Group A and Group B after Snehapana and after Virechana was statistically insignificant with p value >0.05

GROUP A

	Mean		Paired 't' test					Remarks
	B.T	A.T	M.D	S.D	S.E	't'value	P	
BT-AS	1.65	1.3	0.35	0.9867	0.2202	2.1006	0.0493	SS
BT-AV	1.65	0.95	0.7	1.0669	0.2386	5.4802	0.0001	HS

Group A: Before treatment, the mean value was 1.65 and after Snehapana the mean value reduced to 1.3 which was statistically significant with p value <0.05.

After Virechana, the mean value further reduced to 0.95 which was statistically very highly significant with p value <0.001.

GROUP B

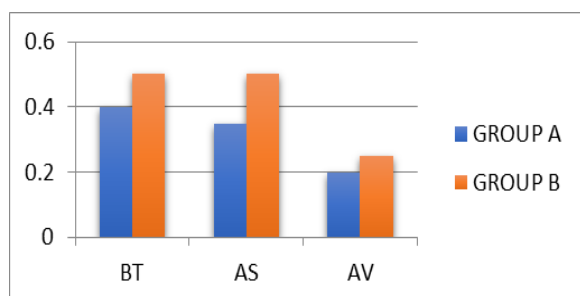|	Mean		Paired 't' test					Remarks
	B.T	A.T	M.D	S.D	S.E	't'value	P	
BT-AS	1.7	1.2	0.5	0.7828	0.1751	2.3639	0.0174	SS
BT-AV	1.7	0.75	0.95	0.8619	0.1928	4.7896	0.0001	HS

Group B: Before treatment, the mean value was 1.7 and after Snehapana the mean value reduced to 1.2 which was statistically significant with p value <0.05. After

Virechana, the mean value further reduced to 0.75 which was statistically very highly significant with p value <0.001.

4. **Effect of Treatment on FUS Between The Groups.**

	Mean		Unpaired 't' test					Remarks
	Group	Mean	S.D	S.E	PSE	't'value	P	
BT	A	0.4	0.59824	0.1338	0.2165	0.4620	0.6466	NS
	B	0.5	0.76088	0.17022				
AS	A	0.35	0.58714	0.1313	0.2023	0.7415	0.4629	NS
	B	0.5	0.68824	0.1539				
AV	A	0.2	0.41039	0.0918	0.1535	0.3258	0.7463	NS
	B	0.25	0.55012	0.12306				

The effect of treatment on FUS in Group A and Group B after Snehapana and after Virechana was statistically insignificant with p value >0.05.

GROUP A

	Mean		Paired 't' test					Remarks
	B.T	**A.T**	**M.D**	**S.D**	**S.E**	**'t'value**	**P**	
BT-AS	0.4	0.35	0.05	0.5856	0.1310	1	0.3299	NS
BT-AV	0.4	0.2	0.2	0.5163	0.1155	1.7097	0.1036	NS

Group A: Before treatment, the mean value was 0.4 and after Snehapana the mean value reduced to 0.35 which was statistically insignificant with p value >0.05. After Virechana, the mean value further reduced to 0.2 which was statistically insignificant with p value >0.05.

GROUP B

	Mean		Paired 't' test					Remarks
	B.T	**A.T**	**M.D**	**S.D**	**S.E**	**'t'value**	**P**	
BT-AS	0.5	0.5	0	0.7161	0.1602	0	1	NS
BT-AV	0.5	0.25	0.25	0.6677	0.1493	1.7506	0.0961	NS

Group B: Before treatment, the mean value was 0.5 and after Snehapana the mean value reduced to 0.5 which was statistically insignificant with p value >0.05. After Virechana, the mean value further reduced to 0.25 which was statistically insignificant with p value >0.05.
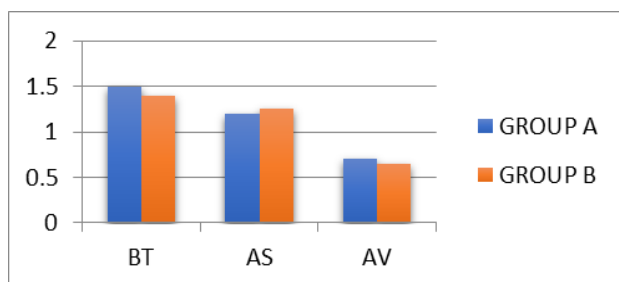
5. **Effect of Treatment on PPUS Between The Groups**

	Mean		Unpaired 't' test					Remarks
	Group	**Mean**	**S.D**	**S.E**	**PSE**	**'t'value**	**P**	
BT	A	1.5	1.3178	0.2948	0.3764	0.2657	0.7918	NS
	B	1.4	1.04629	0.23407				
AS	A	1.2	1.15165	0.2576	0.3734	0.1339	0.8941	NS
	B	1.25	1.20852	0.27036				
AV	A	0.7	0.9787	0.21895	0.3276	0.1526	0.8794	NS
	B	0.65	1.08942	0.24371				

The effect of treatment on PPUS in Group A and Group B after Snehapana and after Virechana was statistically insignificant with p value >0.05.

GROUP A

	Mean		Paired 't' test					Remarks
	B.T	**A.T**	**M.D**	**S.D**	**S.E**	**'t'value**	**P**	
BT-AS	1.5	1.2	0.3	1.2310	0.2753	1.6743	0.1105	NS
BT-AV	1.5	0.7	0.8	1.2152	0.2718	3.3870	0.0031	HS

Group A: Before treatment, the mean value was 1.5 and after Snehapana the mean value reduced to 1.2 which was statistically insignificant with p value >0.05. After Virechana, the mean value further reduced to 0.7 which was statistically highly significant with p value <0.01.
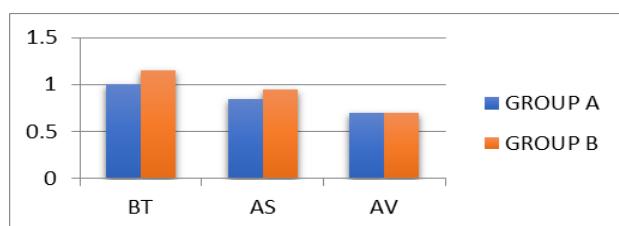
GROUP B

	Mean		Paired 't' test					Remarks
	B.T	**A.T**	**M.D**	**S.D**	**S.E**	**'t'value**	**P**	
BT-AS	1.4	1.25	0.15	1.1183	0.2501	0.9002	0.3793	NS
BT-AV	1.4	0.65	0.75	1.1206	0.2506	3	0.0074	HS

Group B: Before treatment, the mean value was 1.4 and after Snehapana the mean value reduced to 1.25 which was statistically insignificant with p value >0.05. After Virechana, the mean value further reduced to 0.65 which was statistically highly significant with p value <0.01.

6. **Effect of Treatment on Daurbalya Between The Groups**

		Mean		Unpaired 't' test					Remarks
	Group	Mean	S.D	S.E	PSE	't'value	P		Remarks
BT	A	1	0.8583	0.1920	0.2542	0.5901	0.5585		NS
	B	1.15	0.7451	0.1667					
AS	A	0.85	0.7451	0.1667	0.2147	0.4659	0.6438		NS
	B	0.95	0.6048	0.1353					
AV	A	0.7	0.7326	0.1639	0.2078	0	1		NS
	B	0.7	0.5712	0.1277					

The effect of treatment on Daurbalya in Group A and Group B after Snehapana and after Virechana was statistically insignificant with p value >0.05

GROUP A

	Mean		Paired 't' test					Remarks
	B.T	A.T	M.D	S.D	S.E	't'value	P	Remarks
BT-AS	1	0.85	0.15	0.7970	0.1782	1.8311	0.0828	NS
BT-AV	1	0.7	0.3	0.8022	0.1794	2.3486	0.0298	SS

Group A: Before treatment, the mean value was 1 and after Snehapana the mean value reduced to 0.85 which was statistically insignificant with p value >0.05. After Virechana, the mean value further reduced to 0.7 which was statistically significant with p value <0.05.
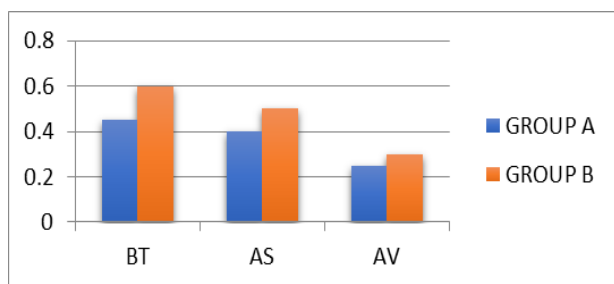
GROUP B

	Mean		Paired 't' test					Remarks
	B.T	A.T	M.D	S.D	S.E	't'value	P	Remarks
BT-AS	1.15	0.95	0.2	0.6774	0.1515	2.1794	0.0042	HS
BT-AV	1.15	0.7	0.45	0.6938	0.1552	3.9428	0.0009	HS

Group B: Before treatment, the mean value was 1.15 and after Snehapana the mean value reduced to 0.95 which was statistically insignificant with p value >0.05. After Virechana, the mean value further reduced to 0.7 which was statistically insignificant with p value >0.05.

7. **Effect of Treatment on BMI Between The Groups**

		Mean		Unpaired 't' test					Remarks
	Group	Mean	S.D	S.E	PSE	't'value	P		Remarks
BT	A	0.45	0.6048	0.1353	0.2280	0.6579	0.5145		NS
	B	0.6	0.8207	0.1836					
AS	A	0.4	0.5982	0.1338	0.1906	0.5247	0.6028		NS
	B	0.5	0.6069	0.1357					
AV	A	0.25	0.5501	0.1230	0.1774	0.2819	0.7795		NS
	B	0.3	0.5712	0.1277					

The effect of treatment on BMI in Group A and Group B after Snehapana after Virechana was statistically insignificant with p value >0.05.

GROUP A

	MEAN		Paired 't' test					Remarks
	B.T	A.T	M.D	S.D	S.E	't'value	P	
BT-AS	0.45	0.4	0.05	0.5943	0.1329	1	0.3299	NS
BT-AV	0.45	0.25	0.2	0.5795	0.1296	2.1794	0.0421	SS

Group A: Before treatment, the mean value was 0.45 and after Snehapana the mean value reduced to 0.4 which was statistically insignificant with p value >0.05.

After Virechana, the mean value further reduced to 0.25 which was statistically significant with p value <0.05.

GROUP B

	Mean		Paired 't' test					Remarks
	B.T	A.T	M.D	S.D	S.E	't'value	P	
BT-AS	0.6	0.5	0.1	0.7143	0.1597	1.4529	0.162	NS
BT-AV	0.6	0.3	03	0.7143	0.1597	2.8535	0.010	SS

Group B: Before treatment, the mean value was 0.6 and after Snehapana the mean value reduced to 0.5 which was statistically insignificant with p value >0.05. After Virechana, the mean value further reduced to 0.3 which was statistically significant with p value <0.05.

Overall results: Group B (Priyangwadi Ghrita) showed better results than Group A in reducing the symptoms Bahu ashi, Shayyasana sheela, Swapna sheela, Prabhuta mutrata, Atikshudha, Trishna, Kara pada suptata and Daurbalya.

Group A (Moorchita Ghrita) showed better results in reducing the symptoms Kara pada daha, Atisweda and FBS.

Both groups have shown same results in the objective parameters PPBS, PPUS and BMI.

Both groups showed insignificant results in the symptoms Avila mutrata and FUS.

DISCUSSION
- Ayurveda considers Madhumeha as one among the 20 Premeha. It is said that, when all other types of Prameha are left untreated, it leads to Madhumeha. Considering this we can say that Madhumeha may be an independent disease or can be a complication of other varieties of Prameha.

- Diabetes mellitus is classified into Type I and Type II. Type I DM patients are usually asthenic and need Insulin for treatment and Type II DM patients are usually obese and are managed with oral hypoglycemic agents.
- While mentioning the chikitsa for Sthula Pramehi, Sushruta explains that the patients should be given Snehana with Priyangwadi siddha ghrita, followed by Vamana, Pragadha Virechana and Basti.
- Priyangwadi Ghrita contains drugs which are Kashaya rasa Pradhana, Laghu Ruksha guna, Katu vipaka, Kapha pitta hara properties which help in the samprapti vighatana of Madhumeha, hence it was selected for the study.
- Virechana is indicated in Sthula Prameha mainly for the purpose of Kledashamana. By kleda shamana there will be reduction in Mutra madhurya and Tanu madhurya and also Bahu Abaddha Medas will be eliminated from the body, thereby aiding in the management of the disease.

CONCLUSION
Madhumeha (Type II Diabetes mellitus) mostly affects the individuals after the age of forty years. Changing life styles e.g.; sedentary life, increased stress and strain may contribute in the establishment of the disease. Madhura ahara, snigdha bhojana, intake of dadhi, viharas like shayyasana sheela, swapna sheela leads to vitiation of Kapha and Meda, causing the disease Madhumeha.

Urbanization also plays a role in the enhancement of the disease. The present study suggests that Type II DM has got a strong genetic component. It also reveals the chronic nature of the disease. The study also suggests that obesity is a risk factor associated with Type II DM. Overweight as seen in majority of the patients, may be a contributing factor in the pathogenesis of Diabetes mellitus. The study confirms the dominancy of Kapha Dosha, Meda Dhatu Dusti, Rasavaha and Medovaha Srotodushti in the pathogenesis of Madhumeha. Virechana though indicated for Pitta Dosha brings normalcy of Tridosha. It removes the avarana and helps in normalizing the Vata. Virechana acts at the level of sukshma srotas (microcellular) and help to maintain the normal physiology of tissues. It can be concluded that on the basis of symptomatology of Madhumeha, the disease Madhumeha can be correlated with Type II Diabetes mellitus. On the basis of result of the therapy it can be concluded that Shodhananga Snehapana with Moorchita Ghrita followed by Virechana and Snehapana with Priyangwadi Ghrita followed by Virechana provided same relief in the signs and symptoms in both groups & was effective in reducing the blood sugar level, however Group B provided comparatively better results.

ABBREVIATIONS
FBS – Fasting Blood Sugar
PPBS – Post Prandial Blood Sugar
FUS – Fasting Urine Sugar
PPUS – Post Prandial Urine Sugar
BMI – Body Mass Index
S- Samyak yoga
A – Ayoga
Ati - Atiyoga

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