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Research Article

A CLINICAL EVALUATION OF *MRUDVIKADI KASHAYAM* IN *MADATYAYA*

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ABSTRACT

In the current scenario; alcohol addiction is one of the major problems faced by the society. As a doctor it is our responsibility to help such alcohol addicts by counseling and treating them to recover from this addiction. It was with this intention that the disease *Madatyaya* has been chosen for the study.

A study was conducted to access clinical efficacy of '*Mrudvikadi Kashayam*'. 20 patients of *Madatyaya* were selected in control group and 20 patients in trial group by random selection method. Control group was not given any medicine; however they were observed for 28 days for all parameters. Trial group patients were administered *'Mrudvikadi Kashayam'* in the dose of 80ml with *Jala* (water) in 2 divided dose, morning and evening after food for the duration of 28 days. Gradation scale was used for the purpose of case taking; however at the time of statistical analysis Wileoxan test, Mann-Whitney test, Paired t-test, Unpaired t-test were used. It revealed that *'Mrudvikadi Kashayam'* is effective in *Madatyaya.* It significantly reduces the symptoms *Daurbalya, Nidranash, Aruchi, Chhardi, Hrullas, Parshwashoola, Shwasa, Murcha, Gaurava* and *Shirokampa*. It increases the Haemoglobin value and lowers the LFT levels in the patients of *Madatyaya.*

'Mrudvikadi Kashayam' is *Balya, Rasayana* and *Pachana,* and enhanced the nutritional status of such alcoholic patients. Also appetite and metabolism is increased due to its *Deepan karma*, which directly affects the Hb level in patients. As *Pippali, Yashtimadhu,* possesses *Vishghna* property, *'Mrudvikadi Kashayam'* detoxified the toxic effects of *Madya* on Liver thus helpful in lowering LFT values.

KEYWORDS: *Madatyaya, Mrudvikadi Kashayam, Ojakshaya,* LFT values.

INTRODUCTION

The classics of Ayurveda quote the similarities between *Madya* and *Visha*. With its ten properties, *Madya* contradicts the ten properties of *Oja* and hence causes *Madatyaya*, ultimately leading to *Ojakshaya*. [1]

In Ayurved, intake of alcohol is not prohibited, but some rules and regulations have been laid down to reap the benefits and avoid the ill effects of alcohol consumption.

If intaken in moderate amount, alchohol may not cause ill. However if continues & frequent intake causes an increase in the tolerance limit & thereby poses the risk of addiction.

Alcoholism is characterized by compulsive and uncontrolled consumption of alcohol despite its negative effects on the drinker's health, relationships, and social status. Like other drug addictions, alcoholism is very complicated to treat.

Our classics too have explained a condition due to the excess intake of *Madya*, termed *Madatyaya* (Alcoholism), as a major problem faced by the society ever since ancient times and given the details regarding its types (*Bheda*), symptoms (*Lakshana*) and mode of treatment (*Upakrama*).

In the modern sciences, the treatment for alcohol withdrawal is primarly in the form of pacifying the symptoms by tranquilizers. Ayurved has described various *Upakramas* and *Kalpas* of which *'Mrudvikadi Kashayam'* has been elicited in the treatment of *Madatyaya* and contains ten ingredients which together act as *Agni-dipana* and *Sroto-sodhana*.[2] The mixture is easy to administer, palatable and cost-effective.

Taking into consideration the above facts, it was decided to conduct this study to ascertain the effect of *'MrudvikadiKashayam'* in *Madatyaya*. On an OPD basis, there are very few patients available and their follow - up is also difficult, so clinical trials in 'Muktangan De-addictin Centre', Pune where alcoholic patients are admitted for 35 days along with some medicines and diet regimen. As patients are admitted here, administering the medicine and observation of the patients was possible. The trial drug was given for 4 weeks and follow-ups were taken.

AIM AND OBJECTIVES

AIM

To study the efficacy of *'Mrudvikadi Kashayam'* in *Madatyaya.*

Objectives

1) To collect the literature on *Madatyaya* and alcoholism according to Ayurvedic classics and modern science.
2) To collect literature of *'Mrudvikadi Kashayam'*, its preparation, dosage, uses etc.
3) To assess the incidence of various types of *Madatyaya.*
4) To record other effects, if any, during treatment.

MATERIALS AND METHODS

40 patients of *Madatyaya,* who fulfill the inclusion criteria were selected from the OPD and IPD of the 'Muktangan' De-addiction Centre', Yerawada, Pune, and

were randomly assigned into 2 groups. Duration of the study was 4 weeks. Assessment was done before and after the study period. Selected patients were randomly assigned into the following two groups, each consisting of 20 patients.

Group A : Control Group

20 patients were included in this group with Diet restriction *(Pathya).*

Group B : Trial Group

20 patients were included in this group with Diet restriction *(Pathya).* They were given the trial drug as per the following dosage schedule.

Dosage schedule

Kalpa	*Mrudvikadi Kashayam*
Matra	80 ml
Sevana kala	*Adhobhakta* (40ml each twice a day)
Anupana	*Jala*
Kalavadhi	For 4 weeks (28 days)

Inclusion criteria

1) Patients of *Madatyaya*
2) Age group 18 years and above
3) Sex - Male only

Exclusion criteria

1) Age below 18 years (as number of patients of this category are negligible in the centre)
2) Female patients (as they are not admitted in this particular centre)
3) Diabetic patients (as the ingredients in *Mrudvikadi Kashayam'* are *Madhur rasatmaka*)
4) Patients with high-risk diseases E.g. severe jaundice, ascitis etc.
   a. Hypertensive patients of blood pressure above 140/90 mm of Hg.
5) Cardiac disorders like IHD, cardiogenic shock, infective endocarditis etc.
6) Severe stage of liver cirrhosis, acute hepatitis, liver abscess etc.

Criteria of Assessment

Objective Parameters

Liver function test

Haemogram test

Subjective Parameters and Gradation[3-6]

S.No.	*Lakshana*	Gradation
1.	*Chardi*	1 = 1 - 2 *Vega* 2 = 2 – 3 *Vega* 3 = 3 – 5 *Vega* 4 = 5 & above
2.	*Hrullas*	1 = Nausea 2 = Nausea and excess salivation 3 = Nausea with regurgitation 4 = Frequently vomiting
3.	*Tandra*	1= *Arati* 2 = *Jrumbha, Jadatwa* 3 = *Indriya kriyalpata* 4 = *Indriya kriyahani*
4.	*Staimitya*	1= *Jadyam* 2 = *Jadyam sa-ardrata* 3 = *Atijadyam sa-ardrata* 4 = *Baadhiryam*
5.	*Gaurava*	1 = *Praatahkalin Gaurava* 2 = *Madhyaanha - paryant Gaurava* 3 = *Sayankal - paryant Gaurava* 4 = *Sampurna dina Gaurava*
6.	*Hikka*	1 = Occasionally 2 = Frequently 3 = Very Frequently 4 = Continuous
7.	*Shwasa*	1 = *Vyayamottar Shwas* 2 = *Nitya dinakarma sahit Shwas* 3 = *Aayasen Shwas* 4 = *Anayasen Shwas*
8.	*Kasa*	1 = *2 – 3 Vega/day* 2 = *5 – 6 Vega/day* 3 = *Muhurmuhu kasa* 4 = *Satat/Ahoratra kasa*
9.	*Pralapa*	1 = Relevant talk with 5 – 10 words per minute 2 = Relevant talk with 10 – 15 words per minute 3 = Relevant talk with 15 – 20 words per minute

		4 = Irrelevant talk.
10.	*Shirokampa*	1 = Occasional 2 = Frequently 3 = Continuous but not disturbing daily routine 4 = Continuous and disturbing daily routine
11.	*Parshvashool*	1 = Occasionally 2 = Once or twice a day 3 = Frequently 4 = Continuous
12.	*Nidranasha*	1= *Kalantaren nidra for app.5-6 hrs at a Stretch* 2 = *Khandit nidra for app.2-3 hrs at a stretch and total app.4-5 hrs.* 3 = *Khandit nidra for app.3-4 hrs followed by anidra.* 4= *Anidra or nidra for 1-2 hrs.*
13.	*Trishna*	1 = *Ishat Trishna* 2 = *Muhurmuhu Trishna* 3 = *Satat Trishna – Jala sevanottar samadhan* 4 = *Satat Trishna - Jala sevanottar asamadhan*
14.	*Jwara*	1 = 99-100 ^{0}F 2 = 101-102 ^{0}F 3 = 103-104 ^{0}F 4 = Above 104 ^{0}F
15.	*Dourbalya*	1= Dyspnoea after moderate to severe work 2= Dyspnoea after mild to moderate work 3= Dyspnoea after mild work 4 = Dyspnoea at rest
16.	*Murcha*	1 = Occasionally 2 = Frequently 3 = Often and with short disorientation. 4 = More often and with prolonged disorientation.
17.	*Sweda*	1 = *Kapala and Shira pradeshi swedotpatti* 2 = *Kaksha and Jangha pradeshi swedotpatti* 3 = *Sarwanga swedotpatti* 4 = *Sarwanga swedotpatti* with *Sarwanga vastra ardrata*
18.	*Aruchi*	Is a S*wasamvedya lakshana,* which was 0 = No assessed during *Prashna pariksha* 1=Yes
19.	*Daaha*	Is a *Swasamvedya lakshana*, which was 0 = No assessed during *Prashna pariksha* 1=Yes

Diagnostic Criteria

Diagnosis was made on the basis of *Lakshnas* of *Madatyaya.*

Plan of Study

Among the two groups, Patients of Group A were not given any medicine or trial drug. They were observed for 4 weeks, while taking weekly follow-up. During this period patients were given similar *Ahar-Vihar* as per the daily regimen of '*Muktangan'*.

Patients of Group B were given *Mrudvikadi Kashayam'* 80 ml in 2 divided dose daily i.e. in the morning and evening after food for 4 weeks, while following the above said regimen.

Follow ups were taken on 7th, 14th, 21st and 28th day respectively.

Counseling

Simple but regular counseling on individual, spouse and family level was done to all patients. Patients were made aware about the hazards of *Madatyaya.* The nature of disorder was explained and reassurance was given. The patient was helped to deal with emotional problems**.**

Drug Review

As *Madatyaya* is a *Tridosha janya Vyadhi* with *Agni dushti* [7], So the Drug which is beneficial in treating both *Agni* as well as *Kapha Dosha* is the better choice in the management of *Madatyaya. Mrudvikadi Kashaya* is among those which mainly acts on *Agni-dipana*, *Sroto-Śodhana* and *Vatapitta samaka.*

The ingredients in *Mrudvikadi Kashaya* [8]

S. no	Ingredient	Latin Name	Quantity
1	*Draksha*	*Vitis vinifera*	1 Part
2	*Yashtimadhu*	*Glycyrrhiza glabra*	1 Part
3	*Madhuka*	*Maduka longifolia*	1 Part
4	*Pippali*	*Piper longum*	1 Part
5	*Kharjura*	*Phoenix dactylifera*	1 Part

6	*Chandana*	*Santalum album*	1 Part
7	*Sariva*	*Hemidesmus indicus*	1 Part
8	*Musta*	*Cyperus rotundus Linn.*	1 Part
9	*Ushira*	*Vetiveria zizanioides*	1 Part
10	*Laja*	*Oryza sativa*	1 Part

Method: Ready prepared *Mrudvikadi Kashayam* was purchased from Shankar Pharmacy (G.M.P Certified) Kerala, The NOC and standardization certificate has been collected from the pharmacy.

Observation and Results

Table 1: Showing Incidence of Age

Age Group	Group A		Group B	
	No. of Pt	%	No. of Pt	%
20 -30yrs	3	15	2	10
31 – 40 yrs	12	60	12	60
41- 50 yrs	5	25	4	20
51 – 60 yrs	0	0	2	10

Table 2: Showing Incidence of Occupation

Occupation	Group A		Group B	
	No. of Pt	%	No. of Pt	%
Service	7	35	5	25
Business	8	40	10	50
Farmer	1	5	4	20
Driver	4	20	1	5
Unemployed	0	0	0	0

Table 3: Showing Incidence of *Prakruti*

Prakruti	Group A		Group B	
	No. of Pt	%	No. of Pt	%
Vataj	5	25	7	35
Pittaj	10	50	12	60
Kaphaj	0	0	0	0
Vatpittaj	4	20	3	15
Vatkaphaj	0	0	0	0
Kaphapittaj	1	5	0	0
Tridoshaj	0	0	0	0

Table 4: Showing Incidence of Type of Alcohol

Type	Group A		Group B	
	No. of Pt	%	No. of Pt	%
Country liquor	0	0	4	20
Beer	2	20	2	10
Whisky	12	60	12	60
Rum	0	0	2	10
Combination	2	20	0	0

Table 5: showing Incidence of Quantity of Alcohol

Quantity/Day (ml)	Group A		Group B	
	No. of Pt	%	No. of Pt	%
180 – 360	1	5	3	15
360 – 540	2	10	3	15
540 – 720	3	15	2	10
720 & Above	13	65	12	60

Table 6: Showing Incidence of Frequency of Alcohol

Frequency/day	Group A		Group B	
	No. of Pt	%	No. of Pt	%
Once / Day	1	5	1	5
Twice/ Day	5	25	1	5
Thrice/ Day	2	10	5	25
>3times / Day	12	60	13	65

Table 7: Showing Incidence of Duration of Alcohol Consumption

Duration (Years)	Group A		Group B	
	No. of Pt	%	No. of Pt	%
1- 5	2	10	2	10
6 – 10	6	30	7	35
11 – 15	8	40	9	45
16 – 20	2	10	2	10

Table 8: Showing Incidence of Dilution of Alcohol

Type	Group A		Group B	
	No. of Pt	%	No. of Pt	%
Diluted	14	70	15	75
Undiluted	6	30	5	25

Table 9: Showing Incidence Of Food With Alcohol

Type	Group A		Group B	
	No. of Pt	%	No. of Pt	%
With Food	12	60	14	70
Without Food	8	40	6	30

Table 10: Showing Incidence of Food After Alcohol

Food	Group A		Group B	
	No. of Pt	%	No. of Pt	%
Veg	2	10	1	5
Mixed	18	90	19	95

Table 11: Showing Incidence of Other Habits

Type	Group A		Group B	
	No. of Pt	%	No. of Pt	%
Smoking	4	20	3	15
Tobacco	6	30	5	25
Gutakha	2	10	3	15
Combination	6	30	7	35
Other	2	10	2	10

Table 12: Showing Incidence of *Dosha Dushti*

Dosha	Group A		Group B	
	No. of Pt	%	No. of Pt	%
Vata	4	20	3	15
Pitta	10	50	12	60
Kapha	4	20	3	15
Tridosha	2	10	2	10

Table 13: Showing Incidence of *Sroto-Dushti*

Strotas	Group A		Group B	
	No. of Pt	%	No. of Pt	%
Manovah	6	30	14	70
Pranvah	3	15	8	40
Udakvah	2	10	4	20
Annavah	10	50	20	100
Rasavah	9	45	17	85
Raktavah	2	10	4	20
Mansvah	1	5	4	20
Medovah	3	15	9	45
Asthivah	1	5	3	15
Majjavah	6	30	14	70
Shukravah	0	0	0	0
Mutravah	4	20	10	50
Purishvah	7	35	14	70

Statistical Analysis

For calculating results from symptoms within groups before and after treatment Wilcoxon sign rank test was used[9]. For results in between groups, Mann-Whitney test (Equivalent to Unpaired t-test) was used.

For investigations, calculating results within groups before and after treatment Paired t-test was used and for results in between groups, unpaired t-test was used

Intra Group study Control Group at Day-0 and at Day-28					
Symptom	**Median grade**				
	Day 0	**Day 7**	**Day 14**	**Day 21**	**Day 28**
Chardi	2	2	1	1	0
p-value		0.025	0.002	0.001	0.002
Aruchi	1	0.5	0	0	0
p-value		0.008	0.004	0.003	0.004
Hrullas	2	2	1	1	0
p-value		0.025	0.002	0.001	0.002
Tantra	2	2	1	1	0
p-value		0.025	0.002	0.001	0.002
Gaurav	0	0	0	0	0
p-value		1.000	0.025	0.008	0.015
Shwas	0	0	0	0	0
p-value		0.317	0.020	0.014	0.016
Kasa	0	0	0	0	0
p-value		0.317	0.317	0.317	0.317
Shirokampa	0	0	0	0	0
p-value		0.083	0.046	0.038	0.034
Parshwashool	0	0	0	0	0
p-value		0.317	0.046	0.023	0.023
Nidranash	0	0	0	0	0
p-value		0.083	0.005	0.005	0.004
Trishna	0	0	0	0	0
p-value		1.000	0.157	0.046	0.059
Daha	0	0	0	0	0
p-value		0.157	0.059	0.063	0.063
Dourbalya	3	2	1.5	1	0
p-value		0.001	0.000	0.000	0.000
Murcha	2	1	1	0.5	0
p-value		0.014	0.001	0.001	0.002
Atisweda	0	0	0	0	0
P-Value		0.317	0.317	0.317	0.317

Intra Group Comparison

Control Group

1. By using Wilcoxon sign rank test p-value > 0.05 therefore there is no significant difference between the day 0 and day 7 with respect to symptom C*hardi, Aruchi, Hrullas, Parshwashool, Trishna, Daurbalya* and *Murcha*. P-value < 0.05 therefore there is significant difference between the day 0 and day 14, day 21, day 28with respect to symptom *Chardi, Aruchi, Hrullas, Parshwashool, Trishna, Dourbalya and Murcha.*
2. By using Wilcoxon sign rank test p-value > 0.05 therefore there is no significant difference between the day 0 and day 7, day 14, day 21, day 28 with respect to symptom *Tandra, Gaurava, Shwas, Kasa, Shirokampa, Parshwashool and Atisweda.*
3. By using Wilcoxon sign rank test p-value > 0.05 therefore there is no significant difference between the day 0 and day 7, day 14, day 21. P-value < 0.05 there is significant difference between day 0 and day 28 with respect to symptom *Daha.*

Intra group study Trial Group at Day-0 and at Day-28					
Symptom	**Median grade**				
	Day 0	**Day 7**	**Day 14**	**Day 21**	**Day 28**
Chardi	0	0	0	0	0
p-value		0.157	0.025	0.014	0.008
Aruchi	2	2	2	2	2
p-value		0.157	0.046	0.025	0.014
Hrullas	3	3	3	2	2
p-value		0.157	0.008	0.001	0.001
Tantra	0	0	0	0	0
p-value		0.317	0.317	0.157	0.157
Gaurav	0	0	0	0	0
p-value		1.000	0.157	0.083	0.083

Shwas	0	0	0	0	0
p-value		1.000	0.157	0.157	0.157
Kasa	0	0	0	0	0
p-value		1.000	1.000	1.000	1.000
Shirokampa	0	0	0	0	0
p-value		1.000	0.317	0.083	0.083
Parshwashool	0	0	0	0	0
p-value		0.157	0.046	0.014	0.014
Nidranash	0	0	0	0	0
p-value		0.180	0.180	0.102	0.102
Trishna	0	0	0	0	0
p-value		0.083	0.025	0.020	0.015
Daha	0	0	0	0	0
p-value		1.000	0.157	0.083	0.046
Dourbalya	3	3	3	3	3
p-value		0.157	0.014	0.003	0.002
Murcha	2	2	2	1.5	1
p-value		0.083	0.025	0.004	0.002
Atisweda	0	0	0	0	0
P-Value		1.000	1.000	0.317	0.317

Trial Group

1. By using Wilcoxon sign rank test p-value < 0.05 therefore there is significant difference between the day 0 and day 7, day 14, day 21, day 28 with respect to symptom *Chardi, Aruchi, Hrullas,Tandra, Daurbalya and Atisweda.*

2. By using Wilcoxon sign rank test p-value > 0.05 therefore there is no significant difference between the day 0 and day 7 with respect to symptom *Gaurav, Shwas, Shirokampa, Parshwashool* and 10. P-value < 0.05 therefore there is significant difference between the day 0 and day 14, day 21, day 28 with respect to symptom *Gaurava, Shwas, Shirokampa, Parshwashoola* and *Nidranash.*

3. By using Wilcoxon sign rank test p-value > 0.05 therefore there is no significant difference between the day 0 and day 7, day 14, day 21, day 28 with respect to symptom *Kasa, Daha* and A*tisweda*.

4. By using Wilcoxon sign rank test p-value > 0.05 therefore there is no significant difference between the day 0 and day 7, day 14, day 28 with respect to symptom *Trishna.*

Inter group study						
Symptom	**Group**	**Median grade at**				
		Day 0	**Day 7**	**Day 14**	**Day 21**	**Day 28**
Chardi	Trial Group	2	2	1	1	0
	Control group	0	0	0	0	0
	p-value	0.174	0.231	0.314	0.398	0.429
Aruchi	Trial Group	1	0.5	0	0	0
	Control group	2	2	2	2	2
	p-value	0.429	0.157	0.040	0.004	0.001
Hrullas	Trial Group	2	2	1	1	0
	Control group	3	3	3	2	2
	p-value	0.114	0.035	0.004	0.000	0.000
Tandra	Trial Group	2	2	1	1	0
	Control group	0	0	0	0	0
	p-value	0.040	0.052	0.096	0.121	1.000
Gaurav	Trial Group	0	0	0	0	0
	Control group	0	0	0	0	0
	p-value	0.738	0.738	0.904	0.841	0.383
Shwas	Trial Group	0	0	0	0	0
	Control group	0	0	0	0	0
	p-value	0.565	0.583	0.718	0.799	0.883
Kasa	Trial Group	0	0	0	0	0
	Control group	0	0	0	0	0
	p-value	0.989	1.000	0.989	0.799	0.799
Shirokampa	Trial Group	0	0	0	0	0
	Control group	0	0	0	0	0
	p-value	0.698	0.620	0.602	0.369	0.242

Parshwashool	Trial Group	0	0	0	0	0
	Control group	0	0	0	0	0
	p-value	0.883	0.925	0.883	0.495	0.495
Nidranasha	Trial Group	0	0	0	0	0
	Control group	0	0	0	0	0
	p-value	0.289	0.192	0.327	0.369	0.659
Trishna	Trial Group	0	0	0	0	0
	Control group	0	0	0	0	0
	p-value	0.183	0.242	0.211	0.183	0.142
Daha	Trial Group	0	0	0	0	0
	Control group	0	0	0	0	0
	p-value	0.445	0.369	0.314	0.289	0.060
Dourbalya	Trial Group	3	2	1.5	1	0
	Control group	3	3	3	3	3
	p-value	0.072	0.000	0.000	0.000	0.000
Murcha	Trial Group	2	1	1	0.5	0
	Control group	2	2	2	1.5	1
	p-value	0.327	0.108	0.018	0.014	0.001
Atisweda	Trial Group	0	0	0	0	0
	Control group	0	0	0	0	0
	p-value	0.620	0.602	0.602	0.583	0.583

Inter Group Comparison

a. By using Mann-Whitney test[10] p-value > 0.05 therefore there is no significant difference between control group and study group at day 0. P-value < 0.05 therefore there is significant difference between the control group and study group at day 7, day 14, day 21 and day 28 with respect to symptom *Hrullas* and *Daurbalya, Chardi, Gaurav, Shwas, Nidranash, Shirokampa,, Tandra, Aruchi.*

b. By using Mann-Whitney test p-value > 0.05 therefore there is no significant difference between control group and study group at day 0, day 14. P-value < 0.05 therefore there is significant difference between the control group and study group at day 7, day 14, day 21 and day 28 with respect to symptom, *Murcha, Kasa, Trishna, Daha and Atisweda, Parshwashool.*

Objective parameters							
Objective Parameter		**Day -0**		**Day-28**		**Paired Test**	**P Value**
		Mean score	**Sd**	**Mean score**	**Sd**		
Hemoglobin	Trial	13.185	1.3299	13.880	1.2833	-5.207	<0.001 HS
Hemoglobin	Control	12.755	2.4254	12.905	1.6776	-.437	0.667 NS
Bil. Total	Trial	1.3850	.68000	.8800	.34580	4.142	<0.001HS
Bil. Total	Control	1.1765	.39055	1.0310	.30757	3.559	0.002 Sig
Bil. Direct	Trial	.4505	.18466	.299	.1135	7.230	<0.001 HS
Bil. Direct	Control	.5880	.34934	.395	.1877	2.716	0.014 Sig
Bil. Indirect	Trial	.8010	.40707	.5650	.18144	3.065	0.006 Sig
Bil. Indirect	Control	.7275	.25340	.7490	.25631	.687	0.501 NS
S.G.P.T	Trial	39.95	26.973	27.65	17.403	4.214	<0.001 HS
S.G.P.T	Control	35.85	15.598	26.10	12.468	3.169	0.005 Sig
S.G.O.T	Trial	33.45	21.746	20.75	14.086	6.914	<0.001 HS
S.G.O.T	Control	33.40	14.162	24.05	11.583	3.720	0.001 Sig
Alk. Phos	111.10	65.150	71.65	35.989	5.390	<0.001 HS	<0.001 HS
Alk.Phos	131.25	48.444	101.55	18.492	3.237	0.004 Sig	0.004 Sig

By Statistical analysis of Objective parameters in trial group, Hemoglobin, Bilurubin total, S.G.P.T, S.G.O.T Alk. Phosphate shows highly significant result, in compare of the control group.

DISCUSSION

Day by day the prevalence of alcohol related disorders is increasing in India may be because of effect of media or attraction towards the western culture. An increasing rate of consumption of alcohol is a major problem with extensive legal, social, moral, ethical consequences all over the world irrespective of cultural, geographical, educational, and economic differences. Indiscriminate and repeated use of alcohol produces a gradual, physical and moral deterioration of the individual and leads to crimes or perversions. This alcohol abuse interferes with the health, social relationships, economic stability which have effects further in other areas in terms of illness, disability, decreased productivity, accidents, crimes, family disorientation, economic and psychological hardships, and lastly death in all classes of the society.

Other factors like nutritional deficiency, poor physical health, other systemic pathologies, lack of emotional and family support etc increase the severity of the withdrawal state.[11] There is no specific treatment modality available in conventional science for. detoxifying the effects of alcohol. On the contrary, Ayurved mentions

many drugs for such detoxification. That is why this study entitled 'A Clinical study to assess the efficacy of *Mrudvikadi Kashayam'* in *Madatyaya* was carried out. The drug selected was *Mrudvikadi Kashayam'* which is *Balya, Rasayana, Agni deepana* and *Srotoshodhaka*. In *Madatyaya* due to *Madya* along with *Agni dhushti, Srotodushti* is also a pathological change. To treat that *Mrudvikadi Kashayam* was selected.

Age

In this study the control group and trial group showed maximum 60% of patients belonging to 30 – 40 years of age group and the prevalence goes down in elderly people. (Table -1)

Occupation

This study reveals that prevalence of *Madatyaya* is more in Business and Service category people with 40 % in control group and 50 % of Business in trial group, then in service were 35% in Trial group, 25% of control group and rest were drivers and others including retired and unemployed etc. This may be because of stress of business and office, friends company and financial soundness. (Table - 2)

Prakruti

In control (50%) as well as in trial group (60%) maximum patients were of *Pittaj Prakruti*. The patients of *Vataj Prakruti* occupy second place having 25% in Control and 35% in Trial group. (Table - 3)

Type of Alcohol

This study shown maximum people of control group were addicted to Whisky (60 %) but in Trial group people taking Beer and combination of more than one type occurred more (60%). This may be because of cost, the Whisky being cheaper and produces maximum kick hence maximum people use it and local beverages are still in use in spite of ban over it. (Table - 4)

Quantity of Alcohol consumption

This study showed maximum people of control (65%) and trial group (60%) takes 720ml & more alcohol per day. (Table - 5)

Frequency of Alcohol consumption

0% peoples of control and 65% of trial group consumes alcohol more than 3 times per day (Table-6)

Duration of Alcohol Consumption

40% of people in control group and 45% of peoples in trial group consuming alcohol since 11-15 years. Peoples consuming alcohol since 6-10 years are 30% in control group and 35% in trial group whereas peoples consuming alcohol above 16 years are 10% in both the groups. (Table - 7)

Dilution of Alcohol Consumption

This study reveals that 70% people of control and 75 % of trial group consumes alcohol in diluted form (Table-8)

For dilution they may prefer soda, carbonated cold drinks or only water.

Food intake with Alcohol consumption

60% people of control group and 70% of trial group consumes alcohol with food. (Table -9)

Food intake after Alcohol consumption

This study shows that maximum no. of people i.e. 90% in control group and 95% in trial group take mixed type of food after consumption of alcohol. Thus aggravating the *Dosha & Dushti*. (Table -10)

Other Addiction

30% Of peoples in control and 25% in trial group have a habit of tobacco chewing. But large number of patients i.e. 30% in control group and 35% in trial group have habit of either 2 or more than 2 of the following addictions i.e. *Gutakha*, smoking and tobacco called combination type of habit. These addictions are indicative of *Rajoguna vridhi* of *Mana*. (Table-11)

Dosha Dushti

This study reveals that in majority of people(60%) *Pitta* get affected largely, whereas *Vata* and *Kapha Dosha* were found to be vitiated to a lesser extent. (Table - 12)

Sroto-Dushti

According to this study, *Annavaha* and *Rasavaha srotas* get largely affected in alcoholics of both groups but it also reveals that *Manovaha, Majjavaha* and *Purishvaha srotasa* are the next mostly affected *Srotasa*. (Table – 13)

I. Effect on Symptoms

'Mrudvikadi Kashayam' gives relief in the subjective symptoms as well as in objective criteria like Liver Function test of patients of *Madatyaya.* The result of this study showed there was significant improvement in the trial group compared to control group.

A. Effect in Control Group

In control group, up to some extent, there is significant reduction in the severity of *Chardi, Hrullasa and Aruchi* at day 28. This can be due to-

1) Complete abstinence of alcohol intake i.e. ***Nidanparivarjan.***

2) Balanced diet/regimen is followed.

3) Supplemented by yoga, meditation and counselling.

A) Effect in Trial Group

In the trial group out of 15 symptoms one symptom showed highly significant relief, 8 symptoms shows significant relief and 6 symptoms shows no significant reduction in the severity.

1. *Daurbalya* [H.S]

In control group at Day-0, 70% of patients were of Grade-3 which was reduced by Day 28 in 60% patients.

However in the trial group 40% patients of Grade 3 showed a reduction of 100% by the day 21. This indicates that the medication alleviated the same severity of the aim within a lesser time period i.e. 1 week early.

This can be due to the *Rasayan karma* of *Draksha* by causing *Dhatvagnideepana* due to its *Madhur rasa* and *Sheeta veerya* and by expelling *Dosha* accumulated in *Srotasa.* The *Balya, Brumhan* actions of also helps to reduce *Daurbalya.*

2 *Hrullasa*-[S]

In the *Hrullasa Lakshana* of the control group maximum number of patients were in grade 3 (50%) that was reduced in 25% of patients by Day- 28. However in the

trial group 75% patients showed grade 3 severities and that was altered to grade 1 by the day 21th in 100% patients. This indicates that the medicine alleviated the same severity of the *Lakshana* within a lesser time period.

To relieve the *Hrullasa,* ingredient like *Musta, Pippali, Ushira* in '*Mrudvikadi Kashayam'* having *Pittaghna* property may have proved useful.

3 *Chhardi* [S]

In control group at Day-0, 30% of patients were of Grade-4 which was decreased to 20 % by Day 28 in 30% patients. However in the trial group 60% patients of Grade 3 showed a reduction of 75% by the day 21. This indicates that the medication alleviated the greater severity of the *Lakshana* within a lesser time period (3 weeks early).

This is due to the *Deepan Pachan & Vatanuloman* action of' *Mrudvikadi Kashayam'.*

4 *Gaurav* [S]

Considering the *Gaurav Lakshana*, In control group at Day-0, 30% of patients were of Grade-2 which was reduced within Day 28 in 10% patients. However in the trial group 25% patients of Grade 2 showed a reduction of 100% by the day 21.

This indicates that the medicine reduced the severity of *Gaurav* within a lesser time period. In case of *Gaurava, Kaphaghna* and *Kledaghna guna* of drug like *Pippali, Musta* are responsible.

5 *Shwasa* [S]

In control group at Day-0, 30% of patients were of Grade-1 which was reduced by Day 21 in 100% patients.

However in the trial group 20% patients of Grade 2 showed a reduction of 100% by the day 28. This indicates that the medication alleviated the greater severity of the *Lakshana.*

6 *Nidranash* [s]

In the control group 50% patients showed Grade-3 severity that was reduced by Day-28 in 20%.

However, in the Trial group 35% patients of Grade 3 showed a relief of 100% by the day 14. In *Nidranash t*he same severity of the *Lakshna* was achieved within a lesser time period i.e. 2 weeks early

7 *Aruchi* [.S.]

Considering the *Aruchi Lakshana*, of the control group 30% of patients showed reduction in symptom up to 25% by 28th day. However in the trial group 50% patients showed relief of 75% in the symptom by the 28th day.

This indicates that the medication alleviated a greater severity of the *lakshana* which may be due to *Deepana guna of 'Mrudvikadi Kashayam'.*

8 *Shirokampa* [S]

In control group at Day-0, 20% of patients were of Grade-2 which was reduced by Day 28 in 10% patients. However in the trial group 20% patients of Grade 2 showed a reduction of 100% by the day 28.This indicates that the medication reduced the same severity of the *Lakshana* within a lesser time period (1 week early).

9 *Tandra*

In control group at Day-0, 20% of patients were of Grade-2 which was reduced by Day 28 in 10% patients. However in the trial group 30% patients of Grade 2 showed a reduction of 100% by the day 28. This indicates that the medication reduced the same severity of the *Lakshana* within a lesser time period

II. Changes in Pathological Tests

Considering the Pathological investigations we conducted Haemoglobin and Liver Function Tests which includes Total Bilirubin, Direct Bilirubin, Indirect Bilirubin, SGPT, SGOT, and Serum Alkaline Phosphatase.

A) Effect in control group

Among the above said investigations in Control Group,- there were no significant changes in all the tests except SGPT.

B) Effect in trial group

There is highly significant reduction in all the investigations except Bilirubin Indirect.

1) Effect on Hemoglobin percentage

Before the treatment with '*Mrudvikadi Kashayam'*, mean value of Haemoglobin was 13.18 which became 13.88 after the treatment, showing increase of.70 in mean value whereas in control group mean difference was 0.15 only. It shows drug was effective and statistically highly significant.

This could be possible due to the ingredients in '*Mrudvikadi Kashayam'* especially *Draksha, Yashtimadhu, Pippali* which are having *Rakta prasadana and Balya* properties*, Raktavardhaka, Yakriduttejaka, Pleeha-vriddhihara, Rasayana,*

Also appetite and metabolism could have been increased due to *Deepan karma of 'Mrudvikadi Kashayam'*, which directly affects the Hb level in trial group. Most of the ingredients of *Mrudvikadi kasaya* are *Madhur Rasatamaka, Sheeta Viryatamaka, Vata Pittashamaka and Shonitsthapaka* it could be helpful in increasing Haemoglobin.

1) Liver Function Test

Likewise in LFT it showed that the drug was effective and statistically highly significant in the investigations of Total Bilirubin, Direct Bilirubin, SGPT, SGOT and Alkaline Phosphate.

1) Total Bilirubin

After the treatment with '*Mrudvikadi Kashayam'*, mean difference of Total Bilirubin (mg/dl) was decreased by 1.03 whereas in control group decrease in mean difference was 0.86 only. It implies that drug was effective and statistically highly significant.

2) Direct Bilirubin

After the treatment, mean difference of Direct Bilirubin (mg/dl) was decreased by 0.8 however in control group was 0.16 only. It shows drug was effective and statistically highly significant.

3) SGPT

After the treatment, mean difference of SGOT (IU/L) was decreased by 12 however in control group decrease in mean difference were 9.75 only. It clearly shows drug was effective and statistically highly significant.

5) SGOT

After the treatment, mean value of SGOT (IU/L) was decreased by 13 on the other hand in control group mean difference was decreased by 9 It shows drug was effective and statistically highly significant.

6) Alkaline Phosphate

After the treatment with '*Mrudvikadi Kashayam'*, average difference of Alkaline Phosphate (IU/L) was decreased by 39. whereas in control group decrease in difference was 30 only. It implies that drug was effective and statistically highly significant.

As *Chandan, Yashtimadhu,* possesses *Vishghna*[12] property; '*Mrudvikadi Kashayam'* could probably de-toxify the toxic effects of *Madya* on Liver thus helpful in lowering LFT values.

Probable Action of '*Mrudvikadi kashayam'*

Considering the each ingredient of formulation the probable attributes and action of '*Mrudvikadi Kashayam'* could be as follows.

Veerya- *Sheeta*

Vipak- *Madhur*

Rasa- *Madhura,Kashay*

Guna- *Guru, Snigdha.*

Doshghnata- *Vatpittaghna.*

Karma- *Agnideepana Ojovardhak, Vishaghna Balya, Bruhan, Medhya.*

Rogaghnata: *Raktavardhaka, Yakriduttejaka, Pleeha-vriddhihara, Rasayana, Balya.*

Daurbalya

1. Being *Vatpittashamaka* it reduces the *Vatpittaprakopa* in *Madatyaya.*

2. By *Agnideepan karma* it helps to corrects the *Annavaha srotodushti* & further the *Rasavaha srotas.*

3. Antitoxic property minimizes the toxic effects in the body produced due to excess intake of Alcohol.

4. *Ojovardhak* property corrects the *Ojavikruti.*

5. The general weakness in Madatyaya is reduced due to *Bruhan, Balya karma* of '*Mrudvikadi Kashayam'*.

This probable action may be due to the cumulative effect of the formulation as a whole.

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