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A STUDY TO EVALUATE THE EFFECT OF *GHRITPANA* IN *MANDAGNI*

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Abstract

Introduction: In *Ayurveda* the term “*Agni*” is used for the factor which performs the function of digestion of food and metabolism. *Agni* converts food in the form of energy, which is responsible for all vital functions of our body. In *Sushruta Samhita*, *Mandagni* is defined as *Agni* taking long time to digest even a very small quantity of consumed food and at the same time produces *Udara shiro gaurava*, *Kasa*, *Shwasa*, *Praseka*, *Chhardi*, *Gatrasadana*. *Mandagni* is the root cause of almost diseases. So, by maintaining *Jatharagni* in normal state, we can prevent further diseases. In view of this practical implementation of this study found to be possible and easily adaptable. Though *Ayurveda* had briefly explained the concept of *Agni* there is some lacuna in establishing the effect of *Ghrutpana* in the victim of *Mandagni*. **Aim:** To evaluate the effect of *Ghrutpana* in *Mandagni*. **Objectives:** 1. To evaluate *Agni (Jatharagni)*. 2. To evaluate the effect of *Ghrutpana* in *Mandagni*. **Methodology:** This Clinical study was conducted on 50 subjects with the symptoms of having *Mandagni* condition. The outcomes of subjective parameter were assessed by standard scoring method of *Agnipareekshana patra* and objective parameter were assessed by BMR (Revised Harris Benedict Equation). **Observations and Results:** Effect of *Go-Ghrita* was significant result in *Abhyavaharana shakti*, *Jarana shakti*, *Udara-gaurava*, *Shiro gaurava* and *Gatrasadana*. and non-significant result was obtained in *Kasa*. Overall effect of treatment- 50 subjects of *Mandagni* condition were treated by *Go-Ghrita*. So, *Go-Ghrita* is the effective in the condition of *Mandagni*, which is statistically proven by improving in both the subjective and objective parameters, and also no recurrence was observed during the follow up period. During this study it has

been observed that *Agni* produced by *Go-Ghrita* will stay for longer period So, *Samagni Lakshana* can be seen for long time. **Conclusion:** According to statistical study, the alternate hypothesis- *Go-Ghrita* has beneficial effect in *Mandagni* is accepted.

Keywords: *Mandagni*, *Go-Ghrita*, BMR

Introduction:

The concept of *Agni* is basic concept of *Ayurveda*. This *Siddhanta* provides fundamental knowledge for understanding of the theories of *Ayurveda* viz. *Ahara Pachana*, *Dhatu Utpatti*, *Vyadhi Utpatti* etc. Extinction of the *Agni* leads to death, its proper maintenance helps a person to live a long & healthy life and its impairment gives rise to various diseases. While describing importance of *Agni*, *Acharya Charaka* has said that it is responsible for *Ayu*, *Bala*, *Varna*, *Swasthya*, *Upachaya*, *Prabha*, *Oja* and *Prana*.¹ Among thirteen *Agni* of the body, *Jatharagni* has been given the prime importance as all other *Agni* are depended on it.

“*Mand*” means slow. The meaning of the *Mandagni* is slow digestive power or digestive capacity. In *Sushruta Samhita*, *Acharya Sushruta* says that *Mandagni* is defined as *Agni* taking long time to digest even a very small quantity of consumed food and at the same time produces *Udara shiro gaurava*, *Kasa*, *Shwasa*, *Praseka*, *Chhardi*, *Gatrasadana* ². Thus, by maintaining *Jatharagni* in normal state, we can prevent further diseases.

The present study is carried out to evaluate the effect of *Agnidipana* by using *Go-Ghritapana*. In all most *Samhitas* *Go-Ghrita* describe as *Agnideepaka*, but physician forgets the use of this *Ghrita* in the day-to-day practice³. So, here, first *Go-Ghrita* was taken for the clinical study. *Deepan* is aimed of correcting the *Agni*. *Go-Ghrita* is the best amongst *Deepan Dravyani*. By its regular use, life becomes healthy, *Agni* gets improved and health can be maintained. Therefore, this study has been conducted to evaluate the effect of *Ghritpana* in the condition of *Mandagni*.

Aim & Objectives:

Aim: To evaluate the effect of *Ghritpana* in *Mandagni*.

Objectives:

- 1.To evaluate *Agni* (*Jatharagni*).
- 2.To evaluate the effect of *Ghritpana* in *Mandagni*.

Materials & Methods:

➤ Sample source:

1. Person having *Mandagni* was selected for study based on *Agnipareekshanpatraka*.

2. Persons were selected from Parul University Campus, OPD of Parul Ayurveda Hospital, Limda, Waghodiya, Vadodara, Gujarat.

➤ **Go-Ghrita source:**

Authenticated and standardize product of *Go-Ghrita* (cow ghee) from Amul brand was used for the "*Ghritpana*".

➤ **Method of collection of data:**

❖ **Study design:** Clinical Interventional Study

❖ **Sample size:** 50 subjects

❖ **Study duration:** 28 days or Till *Lakshana* of *Samagni* appears from *Mandagni*.

1st follow up on 7th day

2nd follow up on 14th day

3rd follow up on 21st day

4th follow up on 28th day

❖ **Inclusion criteria:**

- Individual of age between 18 years to 50 years irrespective of gender, religions, and caste system was included for this clinical research.
- Individual having *Mandagni* was selected for research on the basis of *Agnipareekshanpatraka*.

❖ **Exclusion criteria:**

- Individual suffering from systemic disease and congenital anomalies.
- Individuals having *Tikshanagni*, *Vishmagni* and *Samagni*.
- Individual who are under other treatment modalities.
- Individual with *Asatmyatva* of *Ghrita*.
- Individual having addiction of Alcohol & Tobacco.
- Study was not be conducted in *Varsharitu*.

➤ **Plan of work:**

- The assessment of *Agni* was done with *Abhyavaharana Shakti* and *Jarana Shakti*.
- Individual who fulfill the eligibility criteria i.e., *Mandagni* was selected who are voluntarily willing to participate in the study.
- From all included individuals, informed written consent was obtained.
- A comprehensive research proforma was prepared with consideration of taking history as well as physical investigation and *Agni* assessment charts on the 1st day, 7th day, 14th day, 21st day, and 28th day.

- During follow up, when *Samagni Lakshana* are achieved *Ghritpana* procedure has been stopped. Though subject has been called for till 28th day to check whether symptoms of *Samagni Lakshana* being stable or not.
- B.M.R. was measured on the 1st day and again measured after the appearance of *Samagni Lakshana*.

➤ **Interventions:**

- *Dravya- Go Ghrita*
- *Matra- 2 Karsha (24 ml)*⁴
- Root of administration- Oral
- Time of administration- *nirannakala*
- *Anupana- Ushnodaka (1 Pal-48ml)*^{5,6}

➤ **Assessment of result:**

1. Subjective parameters:

- Assessment of *Agni*
 - Abhyavaharana Shakti*
 - Jaranshakti*
 - Associated symptoms like- *Udar-gaurava, Shiro-gaurava, Shwasa, Kasa, Praseka, Chhardi, Gatrasedana*

Assessment Criteria for Mandagni

Jatharagni Pariksha⁷

Abhyavaharana Shakti Parikshana

Table No. 1 Assessment criteria for Abhyavaharana Shakti

Sr. No	Name of food item	Total quantity per day			Frequency per week		
		3	2	1	3	2	1
					≥ 5 days	2 - 4 days	< 2 days
1	solid - quantity in no. chapati / roti / bread / idali / dosa / puri / paratha	≥ 6	3 to 5	≤ 2			
2	Liquids - quantity in cups	≥ 4	2 to 3	≤ 1			

	tea / milk / coffee / buttermilk						
3	semisolid - quantity in spoons ghee / pickle / chatani / souce	≥ 3	1 to 2	< 1			
4	solid / semisolid - quantity in bowls rice / dal / sabji / upama / kheera / sheera	≥ 6	3 to 5	≤ 2			
5	water - in liters	> 2	1 to 2	< 1			

Total score =

Interpretation -

10 to 16 = Heena

17 to 23 = Madhyama

24 to 30 = Uttama

Abhyavaharana Shakti = Heena / Madhyama / Uttama

Jaran Shakti Pariksha –

Table No. 2 Assessment criteria for Jaran Shakti

Sr. No.	Jirnahara Lakshana	Type of Agni			Nature / Frequency	
		Tikshna	Sama	Manda	mostly	some times
		3	2	1	2	1
1	UdgaraShuddhi -	< 3 hours	3 to 6 hours	> 6 hours		
	how many hours after food intake you get clear blenching?					

2	Utsaha -	< 3 hours	3 to 6 hours	> 6 hours		
	how many hours after food intake you feel enthusiasm?					
3	Purisha Vega -	> 2	2	1 or once in two day		
	no. of Mala Vega in a day					
4	Purisha Vega -	< 12 hours	12 hours	> 12 hours		
	how many hours after food intake you get Purisha Vega?					
5	Mutra Vega -	7 to 8	5 to 6	< 4		
	no. of Mutra Vega in a day					
6	Laghuta -	< 3 hours	3 to 6 hours	> 6 hours		
	how many hours after food intake you feel lightness in body?					
7	Kshut -	< 3 hours	3 to 6 hours	> 6 hours		
	how many hours after food intake you feel hungry?					
8	Pipasa -	< 3 hours	3 to 6 hours	> 6 hours		
	after how many hours from food intake you feel thirsty?					
Total score =						
Interpretation -						
type of Agni -			behavior / Nature -			
8 to 13 = Mandagni			8 to 12 = Uncertain = Vishama			
14 to 18 = Samagni			13 to 16 = Certain			
19 to 24 = Tikshnagni						

Associated Symptoms:**Table No. 3 Assessment criteria for associated symptoms of Mandagni**

1.	<i>Udara-gaurava</i>	Absent/Present
2.	<i>Shiro-gaurava</i>	Absent/Present
3.	<i>Kasa</i>	Absent/Present
4.	<i>Shwasa</i>	Absent/Present
5.	<i>Praseka</i>	Absent/Present
6.	<i>Chhardi</i>	Absent/Present
7.	<i>Gatrasadana</i>	Absent/Present

2. Objective parameter:

B.M.R. was measured (Revised Harris Benedict Equation) on 1st day and again measured after the appearance of *Samagni Lakshana*.

Observations & Results:

- **Effect of *Ghritpana* on *Abhyavaharana Shakti*:**

Table No.4 Friedman's test (*Abhyavaharana Shakti*)

<i>Abhyavaharana Shakti</i>	Mean Rank
<i>Abhyavaharana Shakti</i> BT	1.31
<i>Abhyavaharana Shakti</i> 7 th Day	2.62
<i>Abhyavaharana Shakti</i> 14 th Day	4.04
<i>Abhyavaharana Shakti</i> 21 st Day	4.31
<i>Abhyavaharana Shakti</i> 28 th Day	4.36
<i>Abhyavaharana Shakti</i> AT	4.36

Variable	N (No. of subjects)	χ^2	P (Value)	Remark
Abhyavaharana Shakti	50	189.153	.000	S

Table No.5 Wilcoxon signed rank test (*Abhyavaharana Shakti*)

Symptom	N. R			P. R							
Variable	N	MR	SR	N	MR	SR	Ties	Total	Z value	P value	Remark
<i>Abhyavaharana Shakti</i> BT -7D	0	.00	.00	22	11.50	253.00	28	50	-4.600	.000	S
<i>Abhyavaharana Shakti</i> BT-14D	0	.00	.00	47	24.00	1128.00	3	50	-6.856	.000	S
<i>Abhyavaharana Shakti</i> BT-21D	0	.00	.00	50	25.50	1275.00	0	50	-6.944	.000	S
<i>Abhyavaharana Shakti</i> BT-28D	0	.00	.00	50	25.50	1275.00	0	50	-6.887	.000	S
<i>Abhyavaharana Shakti</i> BT-AT	0	.00	.00	50	25.50	1275.00	0	50	-6.887	.000	S

- **Effect of *Ghrutpana* on *Jarana Shakti*:**

Table No. 6 Friedman's Test (*Jarana shakti*)

<i>Jarana shakti</i>	Mean Rank
<i>Jarana shakti</i> BT	1.61
<i>Jarana shakti</i> 7 th Day	1.73
<i>Jarana shakti</i> 14 th Day	3.83
<i>Jarana shakti</i> 21 st Day	4.61
<i>Jarana shakti</i> 28 th Day	4.61
<i>Jarana shakti</i> AT	4.61

Variable	N (No. of subjects)	χ^2	P (Value)	Remark
<i>Jarana shakti</i>	50	215.197	.000	S

Table No. 7 Wilcoxon signed rank test (*Jarana Shakti*)

Symptom	N. R			P. R							
Variable	N	MR	SR	N	MR	SR	Ties	Total	Z value	P value	Remark
<i>Jarana shakti</i> BT-7D	0	.00	.00	2	1.50	3.00	48	50	-1.414	.157	NS
<i>Jarana shakti</i> BT-14D	0	.00	.00	37	19.00	703.00	13	50	-6.083	.000	S
<i>Jarana shakti</i> BT-21D	0	.00	.00	50	25.50	1275.00	0	50	-7.071	.000	S
<i>Jarana shakti</i> BT-28D	0	.00	.00	50	25.50	1275.00	0	50	-7.071	.000	S
<i>Jarana shakti</i> BT-AT	0	.00	.00	50	25.50	1275.00	0	50	-7.071	.000	S

- **Effect of *Ghritpana* on *Udar-gaurava*:**

Table No. 8 Friedman's test (*Udar-gaurava*)

<i>Udar-Gaurava</i>	Mean Rank
<i>Udar gaurava</i> BT	4.02
<i>Udar gaurava</i> 7 th Day	4.08
<i>Udar gaurava</i> 14 th Day	3.36
<i>Udar gaurava</i> 21 st Day	3.18
<i>Udar gaurava</i> 28 th Day	3.18
<i>Udar gaurava</i> AT	3.18

Variable	N (No. of subjects)	χ^2	P (Value)	Remark
<i>Udar gaurava</i>	50	60.328	.000	S

Table No. 9 Wilcoxon signed rank test (*Udar-gaurava*)

Symptom	N. R			P. R							
Variable	N	MR	SR	N	MR	SR	Ties	Total	Z value	P value	Remark
<i>Udar gaurava</i> BT-7D	0	.00	.00	1	1.00	1.00	49	50	-1.000	.317	NS
<i>Udar gaurava</i> BT-14D	11	6.00	66.00	0	.00	.00	39	50	-3.317	.001	S
<i>Udar gaurava</i> BT-21D	14	7.50	105.00	0	.00	.00	36	50	-3.742	.000	S
<i>Udar gaurava</i> BT-28D	14	7.50	105.00	0	.00	.00	36	50	-3.742	.000	S
<i>Udar gaurava</i> BT-AT	14	7.50	105.00	0	.00	.00	36	50	-3.742	.000	S

- **Effect of *Ghritpana* on *Shiro-gaurava*:**

Table No. 10 Friedman's test (*Shiro-gaurava*)

<i>Shiro-Gaurava</i>	Mean Rank
<i>Shiro gaurava</i> BT	3.72
<i>Shiro gaurava</i> 7 th Day	3.72
<i>Shiro gaurava</i> 14 th Day	3.48
<i>Shiro gaurava</i> 21 st Day	3.36
<i>Shiro gaurava</i> 28 th Day	3.36
<i>Shiro gaurava</i> AT	3.36

Variable	N (No. of subjects)	χ^2	P (Value)	Remark
<i>Shiro gaurava</i>	50	24.074	.000	S

Table No. 11 Wilcoxon signed rank test (*Shiro-gaurava*)

Symptom	N. R			P. R							
Variable	N	MR	SR	N	MR	SR	Ties	Total	Z value	P value	Remark
<i>Shiro gaurava</i> BT-7D	1	1.50	1.50	1	1.50	1.50	48	50	.000	1.000	NS
<i>Shiro gaurava</i> BT-14D	5	3.50	17.50	1	3.50	3.50	44	50	-1.633	.102	NS
<i>Shiro gaurava</i> BT-21D	6	3.50	21.00	0	.00	.00	44	50	-2.449	.014	S
<i>Shiro gaurava</i> BT-28D	6	3.50	21.00	0	.00	.00	44	50	-2.449	.014	S
<i>Shiro gaurava</i> BT-AT	6	3.50	21.00	0	.00	.00	44	50	-2.449	.014	S

- Effect of *Ghritpana* on *Kasa*:

Table No. 12 Friedman's test (*Kasa*)

<i>Kasa</i>	Mean Rank
<i>Kasa</i> BT	3.55
<i>Kasa</i> 7 th Day	3.49
<i>Kasa</i> 14 th Day	3.49
<i>Kasa</i> 21 st Day	3.49
<i>Kasa</i> 28 th Day	3.49
<i>Kasa</i> AT	3.49

Variable	N (No. of subjects)	χ^2	P (Value)	Remark
<i>Kasa</i>	50	5.000	.416	NS

Table No. 13 Wilcoxon signed rank test (*Kasa*)

Symptom	N. R			P. R							
Variable	N	MR	SR	N	MR	SR	Ties	Total	Z value	P value	Remark
<i>Kasa</i> BT-7D	1	1.00	1.00	0	.00	.00	49	50	-1.000	.317	NS
<i>Kasa</i> BT-14D	1	1.00	1.00	0	.00	.00	49	50	-1.000	.317	NS
<i>Kasa</i> BT-21D	1	1.00	1.00	0	.00	.00	49	50	-1.000	.317	NS
<i>Kasa</i> BT-28D	1	1.00	1.00	0	.00	.00	49	50	-1.000	.317	NS
<i>Kasa</i> BT-AT	1	1.00	1.00	0	.00	.00	49	50	-1.000	.317	NS

- Effect of *Ghritpana* on *Gatrasadana*:

Table No. 14 Friedman's test (*Gatrasadana*)

<i>Gatrasadana</i>	Mean Rank
<i>Gatrasadana</i> BT	3.80
<i>Gatrasadana</i> 7 th Day	3.80
<i>Gatrasadana</i> 14 th Day	3.44
<i>Gatrasadana</i> 21 st Day	3.32
<i>Gatrasadana</i> 28 th Day	3.32
<i>Gatrasadana</i> AT	3.32

Variable	N (No. of subjects)	χ^2	P (Value)	Remark
<i>Gatrasadana</i>	50	35.455	.000	S

Table No. 15 Wilcoxon signed rank test (*Gatrasadana*)

Symptoms	N. R			P. R							
Variable	N	MR	SR	N	MR	SR	Ties	Total	Z value	P value	Remark
<i>Gatrasadana</i> BT-7D	0	.00	.00	0	.00	.00	50	50	.000	1.000	NS
<i>Gatrasadana</i> BT-14D	6	3.50	21.00	0	.00	.00	44	50	- 2.449	.014	S
<i>Gatrasadana</i> BT-21D	8	4.50	36.00	0	.00	.00	42	50	- 2.828	.005	S
<i>Gatrasadana</i> BT-28D	8	4.50	36.00	0	.00	.00	42	50	- 2.828	.005	S
<i>Gatrasadana</i> BT-AT	8	4.50	36.00	0	.00	.00	42	50	- 2.828	.005	S

- **BMR:**

Table No. 16 Wilcoxon signed rank test (BMR)

Objective Parameter	N. R			P. R							
Variable	N	MR	SR	N	MR	SR	Ties	Total	Z value	P value	Remark
BMR BT-7 th day	0	.00	.00	1	1.00	1.00	1	2	-1.000	.317	NS
BMR BT-14 th day	0	.00	.00	32	16.50	528.00	3	35	-4.977	.000	S
BMR BT-21 st day	0	.00	.00	11	6.00	66.00	2	13	-2.940	.003	S

Overall effect of treatment:**Table No. 17 Overall effect of treatment**

Result	Total
Cured	50
Recurrence	00
Total	100%

Discussion:**Discussion on selection of Go-Ghrita:**

- For the clinical study, *Go-Ghrita* was selected which acts as *Tridosha-shamaka*⁸.
- According to the classics, *Go-Ghrita* is having *Madhura Rasa*, *Snigdha* and *Guru Guna*, *Sheeta Veerya*.
- *Go-Ghrita* can stimulate *Agni* without exacerbating *Pitta* aggravations and *Go-Ghrita* also work has a its own *Prabhava* as *Agnideepana*.
- *Go-Ghrita* works efficiently with *Prabhava* and *Agnideepana* is effect of this. So, this *Prabhava*, work by suppressing *Rasa*, *Vipaka* and *Veerya*⁹.
- *Ushnodaka* taken as *Anupana*, it increases digestive power, alleviates *Kaphavata*. *Ushnodaka* will act as *Deepana*, *Pachana* and *Vatanulomana*¹⁰. *Deepana* property of *Ushnodaka* causes expansion of *Srotas* carrying digestive juices, thus increasing their flow, resulting in proper digestion. This *Ushnodaka* allows it to cleanse the channels and thus it becomes easier for the body to flush out toxins and impurities.

Discussion on Observations & Results:

A special Performa was prepared to record observation, results and assess the effects of treatment in 50 subjects. The assessment was done on subjective criteria like *Abhyavaharana Shakti*, *Jarana Shakti* on 1st, 7th, 14th, 21st and 28th day and Objective criteria as BMR was measured on the 1st day and again measured after the appearance of *Samagni Lakshana*.

Result on BMR:

The Basal metabolic rate (BMR) is considered as the objective parameter to assess the result.

In this study morphological characters were considered as BMR is dependent on Height and Weight.

Wilcoxon signed rank test was applied to see the effect on BMR before treatment and after 7th day of treatment and test shows that it was non-significant result with p value .317. Also, Wilcoxon signed rank test was applied to see the effect on BMR before treatment and after 14th day, test shows that it was significant result with p value .000, and before treatment and 21st day of treatment, test shows that it was significant after treatment with p value .003. So here, BMR is found improvement in after *Samagni Lakshana* as compared to *Mandagni Lakshana* and the test shows that it was significant result.

According to modern parameter, BMR is basal metabolic rate, i.e., the calories are needed for the normal functioning of body activities. After the consumption of *Go-Ghrita*, it was found that BMR was increased significantly. So, we can say consumption of *Go-Ghrita* is responsible for improve normal *Agni* function that is improve *Abhyavaharana shakti* and *Jarana shakti* and this leads to good *Dhatu* formation. So, this study also has given the significant result and proving the *Agnivardhaka* function of *Go-Ghrita*.

Discussion on overall effect of treatment:

According to classics, *Agnipareekshana* is done on the basis of *Abhyavaharana Shakti* and *Jarana Shakti*.¹¹ But, in *Charaka Samhita* according to *Acharya Charaka* also mentioned in *Vimana Sthana* 4/8, *Agni* should be tested by *Jarana Shakti*¹². So, here all over effect of treatment is done on the basis of *Jarana Shakti*.

50 subjects of *Mandagni* condition were treated by *Go-Ghritpana*, so after starting *Ghritpana*, *Samagni* condition was observed in 2 subjects at the end of 7 days, In 35 subjects *Samagni* condition was observed at the end of 14 days, In 13 subjects *Samagni* condition was observed at the end of 21 day and Then after at the end of 28-day *Samagni* was stable and there is no changes are observed.

Conclusion:

- Condition of *Mandagni* improved at primary level use of *Go-Ghrita* in 2 *Karsha Matra*.
- The *Ghritpana* method is convenient and no adverse effect was noticed during the research study hence we can say that it is the safe treatment for *Mandagni*. By prescribing *Go-Ghrita*, it increases the eating capacity as well as digestive capacity also.
- *Go-Ghrita* is the effective in the condition of *Mandagni*, which is statistically proven by improving in both the subjective and objective parameters, and also no recurrence was observed during the follow up period.

- Hence, the alternate hypothesis- *Go-Ghrita* has beneficial effect in *Mandagni* is accepted and the null hypothesis is rejected.

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