



## Research Article

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### ROLE OF MUDGA AND KWATHITA SHEETA JALA (BOILED AND COOLED WATER) AS A PATHYA AAHAR WITH YOGA MODALITIES IN AMLAPITTA

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#### ABSTRACT

The key intends of Ayurveda is to maintain the health of healthy persons and make well the ill health of the diseased person. In Swasthavritta it has been clearly mentioned about Hitakara ahara-vihara and Yoga for healthy life. Amlapitta is a very common disease of Annavaaha srotas. In present time a huge population is highly affected from Amlapitta due to unhealthy food habits, mental stress, and inactive life style. This paper investigates the effect of Mudga and Kwathita Sheeta Jala (Boiled and cooled water) as a Pathya- ahara and Yoga modalities in Amlapitta. Furthermore, the combined effect of Mudga, Kwathita Sheeta Jala and Yoga modalities in Amlapitta has also studied. In this present study, 60 patients were assigned into three Group A, B and C (20 patients in each group). All the general observations and results with statistical data of 20 patients of each group were illustrated in the form of tables and graphs. In this study, the therapy of Group C shows better result than Group A and Group B. Hence, Mudga Yusha and Kwathita Sheeta Jala (boiled and cooled water) along with Yoga modalities is more effective to control Amlapitta disease.

**Keywords:** Amlapitta; Mudga; Kwathita Sheeta jala; Yoga.

#### INTRODUCTION

Ayurveda is an ancient system of medicine in the humanity which is science of life. Ayurveda has been maintaining good health and preventing disease through proper diet, Yoga and exercise. Dinacharya (daily routine), Ritucharya (seasonal regimes), diet, nutrition is described in Ayurveda for promotion of health and prevention of disease. Ayurveda is way of life and complete positive health along with mental and spiritual well-being.

In the present scenario of modernization, poor lifestyle patterns have disadvantage for physical and mental health. High intake of fast food, poor eating habits, lack of physical exercise, long sedentary hours, regular long journey, mental stress are a major problem in modern era. Amlapitta is extensively spreading in the human being of every age and sex, developing as well as in developed nations. In Ayurveda, acidity or gastritis are correlated with Amlapitta which is caused by the unhealthy diet, too much eating, consuming excessive tea, coffee, tobacco, alcohol, inactive life style, lack of physical activity, side effects of certain medications, etc. A huge population is highly affected due to this disease. In western Studies, the general population suffers from GORD (Gastro-Oesophageal Reflux Disease) is 15% to 20%. The prevalence of GORD in Asia is 2.3% to 8%.<sup>1</sup> Incompatible diet, consumption prior to digestion, eating during indigestion, Aama (undigested food), Pishta-anna (flour), semi-digested food, alcohol, milky product, heavy diet, Abhishyandi Ahara, control of usual urges, excessive use of very hot, unctuous, dry, sour and liquid diet, sugarcane product, Kulattha, Bhrishta-dhanya (fried paddy), Pulakanam (husky food), Prithuka (flattened rice obtained from boiled paddy), repeatedly sleeping in day time after eating again and again, taking excessive bath, excessive

swimming, Antaroda-kapana (drinking of excess water during meal) are causative factors of Amlapitta mentioned in Kashyapa Samhita.<sup>2</sup>

Charaka emphasizes value of food. Food is responsible for healthy body as well as diseased one, healthy and unhealthy foods are responsible for cheerfulness and respectively unhappiness.<sup>3</sup> In Brihatrayee, Amlapitta has not been described separately. Kashyapa and Madhavakara recognized it separately with detailed description of Nidana, Samprapti, and Lakshanas etc. According to Acharya Kashyapa, Prakupita Vatadi doshas causes Mandagni which leads to the Vidagdha of consuming food. Thus produced Vidagdha Anna gets retained in the Amashaya leading to creation of Shukta (Amla) resulting in the symptom of Amlapitta.<sup>4</sup> According to Vagbhata all the diseases are caused by Mandagni.<sup>5</sup> According to Madhavakara the symptoms of the Amlapitta vyadhi are Avipaka, Klama, Utklesha, Tikta-Amla Udgara, Gaurava, Hrit-Kanth Daha and Aruchi.<sup>6</sup>

Yogaratanakara has mentioned Mudga Yusha is superior among all Yushas, it is Dipaniya (appetizer), Sheetala (cooling effect), Laghu (light), Vranahara (wound healing), useful in Urdhwa-jatrugata disease, Dahashamaka (diminish burning sensation), Jwara-hara (subside fever) and Rakta-dosha shamaka (diminish Rakta disease), Kapha pitta shamaka (diminish Kapha and Pitta diseases).<sup>7</sup> Acharya Sushruta and Vagbhata have mentioned about Kwathita Sheeta Jala (Boiled and cooled water). Boiled and cooled water is recommended in diseases caused by drinking liquors, in those caused by vitiated Pitta and also in those caused by a combination of all the three vitiated doshas. Boiled cooled water is also useful for burning sensation, diarrhoea, vitiated blood, fainting, toxic, thirst, vomiting and also use in giddiness.<sup>8</sup>

According to literary information Yoga modalities like Asana's, Nadi Shuddhi and Sheetal Pranayama result in various beneficial effects, which also includes promotion of Agni-varhdhana leading to the treatment of Amlapitta. The main objectives of the present study are:

- To study the effect of Mudga and Kwathita Sheeta Jala (Boiled and cooled water) as a Pathya ahara in Amlapitta.
- To study the effect of Yoga modalities in Amlapitta.
- To study the combined effect of Mudga, Kwathita Sheeta Jala and Yoga modalities in Amlapitta.
- To study the nature of the diseases and the changes occurring during the course of the treatment.

## MATERIALS AND METHODS

**Place of study:** For clinical study 60 patients of Amlapitta were selected from the OPD of Shri Khudadad Dungaji Government Ayurvedic College Hospital, Raipur (Chhattisgarh).

**Sample size:** Total 60 patients were registered and divided into three groups A, B, C (20 patients in each group).

**Study type:** Clinical study.

**Sampling method:** Simple random.

**Methods of collection of data:** Patients were selected according to the classical sign and symptoms of Amlapitta, irrespective of sex, religion, occupation, and socio-economic status.

### Diagnostic criteria

- Hrit-Kantha Daha (Burning sensation in chest and throat region)
- Tikta and Amlodgara (Sour and Bitter belching)
- Avipaka (Indigestion)
- Klama (Tiredness)
- Utklesha (Nausea)
- Gaurava (Heaviness)
- Aruchi (Loss of taste / Appetite)

### Inclusion criteria

- The patients with all general symptoms of Amlapitta according to Ayurvedic texts.
- Patients between the age group of 20 to 60 years.
- Patients who gave their consent in writing will be participating in this study.

### Exclusion criteria

- Patient's age group below 20 and above 60 years.
- Patients suffering from systemic disorders.
- Patients suffering from moderate to severe Anemia.
- Known case of Gastric and duodenal ulcer.
- Known case of Diabetes and Hypertension.
- Patients restricted for particular Aasana and Pranayama.
- Patients not willing to participate in a clinical trial.

### Criteria of withdrawal

- Any serious complication develops which requires urgent treatment with any other drug/ therapy.
- Patient not willing to continue for the further study.

**Plan of study:** The patients of Amlapitta came to OPD of Government Ayurvedic College Hospital, Raipur were registered and divided into 03 groups, each group comprises of 20 patients.

Each patient was going through the following clinical method respectively, as illustrated in Table 1.

## Method of Intervention

### Group A

Group A had been administered with 100 ml. of Mudga Yusha twice a day and 2 to 3 liters of Kwathita Sheeta Jala (Boiled and cooled water) daily at regular interval (As muhurmuhi vidhi) for 90 days.

### Group B

Group B had been advised for sets of Yoga and Pranayama of 30 minutes, empty stomach in the morning, in the Yoga unit of Govt. Ayurveda College Hospital Raipur for 90 days. Following Yoga modalities was performed respectively.

### Group C

Group C had been administered with Mudga Yusha and Kwathita Sheeta jala, and Yoga modalities simultaneously. Dose and timing of taking mudga Yusha and Kwathita Sheeta jala and way of yoga practice was same as Group A and Group B respectively, as shown in Table 2.

**Ethical Committee Clearance:** Institute level Ethics Committee of Shri Narayan Prasad Awasthi Govt. Ayurved College Raipur, Chhattisgarh evaluated the submitted synopsis proposal and approved this protocol having standard guidelines of clinical survey, same can be found with Ref. No./IEC/2018/72, dated 25/07/2018.

### Assessment criteria

Changes in symptoms of participating patient were checked prior and post course of treatment and following symptoms were assessed.

- Avipaka (Indigestion)
- Klama (Tiredness)
- Utklesha (Nausea)
- Tikta and Amlodgara (Sour and Bitter belching)
- Gaurava (Heaviness)
- Hrit-Kantha Daha (Burning sensation in chest and throat region)
- Aruchi (Loss of taste / Appetite)

## Grading of Cardinal Symptoms

Results obtained in form of relief to patients is demonstrated with grading scale in range of 0 to 3, score for different magnitude of relief was fixed and analyzed statistically. The Grading of clinical features of Amlapitta according to severity is described as follows.

### Avipaka

Grade	Symptom
0	No indigestion
1	Digests normal usual diet in 09 hours
2	Digests normal usual diet in 12 hours
3	Digests normal usual diet in 24 hours or more

### Klama

Grade	Symptom
0	No tiredness
1	Feel tired after exertion work
2	Feel tired after normal work
3	Feel tired even after taking rest

### Utklesha

Grade	Symptom
0	No nausea
1	Feel nausea after eating some peculiar food
2	Feel nausea after eating all kinds of food
3	Full day nausea, not related to eating

### Tikta-Amla Udgara

Grade	Symptom
0	No sour and bitter belching
1	Sour and bitter belching after taking spicy food
2	Sour and bitter belching after taking any type of food
3	Sour and bitter belching having no relation with food intake

### Gaurava

Grade	Symptom
0	No feeling of heaviness in the body
1	Heaviness after taking more quantity of heavy food
2	Heaviness even after taking light food
3	Heaviness even on empty stomach

### Hrit-Kantha Daha

Grade	Symptom
0	No burning sensation
1	burning sensation after intake of spicy food
2	Feeling of burning sensation even after intake of normal food
3	burning sensation even empty stomach

### Aruchi

Grade	Symptom
0	No loss of appetite
1	Eat food only two times without any snacks in between
2	Eat only once
3	Have no feeling of appetite

### Assessment of the total effect of therapies

The overall assessment was calculated in terms of improvement in percentage of relief.

- Complete remission – 100%
- Marked improvement – 76% to 99%
- Improvement – 51% to 75%
- Mild improvement – 26% to 50%
- Unchanged – Below 25%

### Statistical Analysis

The subjective parameters were statistically analyzed in term of –  
S.D. - Standard Deviation  
S.E. - Standard Error

The observed findings were scaled numerically to perform statistical analysis with SPSS 16.0 statistical package. Wilcoxon Rank Sum test was applied for all the subjective parameters like Avipaka, Klama, Utklesha etc. Kruskal-Wallis test compared the effect of therapies of different groups.

Level of Significance

- Insignificant  $p > 0.05$
- Significant  $p < 0.05$
- Highly Significant  $p < 0.01$

### OBSERVATION

An extensive clinical study was carried out on selected 60 patients of Amlapitta disease and those patients were divided into three Groups A, B and C. The data was obtained from this clinical study and successively, many factors were observed according to the distribution of patients in each group. Observations are described at below at the form of table and graphs.

#### Trial status wise distribution 60 Amlapitta patients

In the present study, 60 patients of Amlapitta disease were registered and those patients were equally divided into three groups. Furthermore, the therapy was started in each group for mitigating the Amlapitta disease. Eventually, the therapy was completed 100% in each group for all the 60 patients with no any withdrawal.

**Gender wise distribution of 60 Amlapitta patients:** In the present study, 66.67% patients were male whereas 33.33% patients were female.

**Age wise distribution of 60 Amlapitta patients:** In the present study, maximum no of patients was middle age group between 31-40 years i.e., 41.67%. Remaining were 31.67% between age group of 41-50 years, 11.67% between age group of 51-60, 15% between age group of 20-30.

**Marital status wise distribution of 60 Amlapitta patients:** Married patients are far more in number than unmarried ones, figure depicts that 90% of patients are married and 10% are unmarried.

**Occupational status wise distribution of 60 Amlapitta patients:** In the present study, Female homemakers are maximum sufferers of Amlapitta as per the statistics i.e., 30%, followed by service sector professionals 28.33%, Businessmen 21.67%, labour 11.67% and minimum account is of students i.e., 5% and farmer 3.3%.

**Educational status wise distribution of 60 Amlapitta patients:** In this study, maximum i.e., 43.33% patients were graduate followed by 18.33% patients educated up to higher secondary, 15% patients postgraduate, 10% patients secondary, 6.67% patients were belonging to primary education and 6.67% patients were found uneducated.

**Socio-economic status wise distribution of 60 Amlapitta patients:** Middle class patients were maximum among registered which is 81.67% and lower-class patients registered was few of them which is 18.33%.

**Duration of illness wise distribution of 60 Amlapitta patients:** Majority of patients in this study i.e., 25 (41.67%) patients were suffering from 7 to 12 month, 21 i.e., (35%) patients were suffering from 0 to 06 months, 13 i.e., (21.67%) patients were suffering from 13 to 18 months and only 1 (1.67%) patient was suffering from 19 to 24 months.

**Family history of illness wise distribution of 60 Amlapitta patients:** About 80% patients had no past history of family suffering from Amlapitta and only 20% had family history.

**Distribution of 60 Amlapitta patients according to Agni:** In the present study, 58.33% of patients had Mandagni while 33.33% had Vishmagani and 8.33% suffered with Tikshnagni.

**Distribution of 60 Amlapitta patients according to Koshtha:** Maximum no of patients had Madhyama koshtha i.e., 55%, followed by Krura koshtha 31.67% and minimum had Mridu koshtha 13.33%,

**Distribution of 60 Amlapitta patients according to Ahara:** Out of 60 patients, 32 (53.33%) was taken vegetarian diet, 28 (46.67%) of patients were consuming mixed diet.

**Distribution of 60 Amlapitta patients according to Dietary habit:** Maximum no. of patients with Vishamashana i.e., 40 (66.67%) were registered followed by 12 (20%) of patients were consuming Samashana diet and minimum were having Adhyashana i.e., 8 (13.33%).

**Distribution of 60 Amlapitta patients according to Pattern of diet:** In this study, 80% patients had irregular dietary habit, only 20% had regular food habits. It has been presented.

**Distribution of 60 Amlapitta patients according to Rasa Pradhana:** Out of 60 patients, 20 (33.33%) patients were taken Amlarasa-Pradhana ahara, 17 patients (28.33%) were taken Lavana rasa Pradhana ahara, 11 patients (18.33%) were taken Madhura rasa Pradhana ahara, 10 patients (16.67%) were taken Katu rasa Pradhana ahara and 2 patients (3.33%) were taken Katu rasa Pradhana ahara.

**Distribution of 60 Amlapitta patients according to Guna Pradhana:** Maximum patients i.e., 48 (80%) were taken Snigdha guna Pradhana ahara followed by 47 (78.33%) were taken Ushna guna Pradhana ahara, 32 (53.33%) Laghu, 28 (46.67%) Guru, 13 (21.67%) Sheeta and 12 (20%) patients were taken Ruksha guna Pradhana ahara.

**Divaswapna wise distribution of 60 Amlapitta patients:** Out of 60 patients, 44 (73.33%) patients were doing not taken divaswapna while 16 (26.67%) patients were taken divaswapna.

**Addiction wise distribution of 60 Amlapitta patients:** Maximum no. of patients was habituated with tea/coffee i.e., 63.33%, followed by Tobacco addiction 23.33%, Alcohol addiction 16.67%, Smoking and Gudakhu each 3.3%, many patients had multiple addiction and only 23% were without any addiction.

**Distribution of 60 Amlapitta patients according to Nature of work:** In this study, 53.33% patients were doing their work on setting position, 21.67% patients were doing their work on standing position, Heavy worker 20% and Traveler 5%.

**Distribution of 60 Amlapitta patients according to Satisfied with work:** 50% patients were satisfied with their work profile, 38.33% were not satisfied and 11.67% were partial satisfied.

**Sharirika prakriti wise distribution of 60 Amlapitta patients:** In the present study, Vata-pitta prakriti was found in 26 (43.33%) patients followed by kapha-pitta prakriti in 19 (31.67%) patients where as Vata-kapha prakriti was found in 15 (25%) patients only.

**Mansika prakriti wise distribution of 60 Amlapitta patients:** Out of 60 patients, 45 (75%) patients were Rajas Pradhana Mansika prakriti while 15 (25%) patients having Tama Pradhana Mansika Prakrit.

**Sara wise distribution of 60 Amlapitta patients:** In this study, maximum no of patients i.e., 45 (75%) were showing Madhyama Sara, 11 (18.33%) patients were showing Pravara Sara and Avara in 7% of patients.

**Samhanana wise distribution of 60 Amlapitta patients:** Maximum no. of patients had Madhyama Samhanana i.e., 49 (81.67%), 9 (15%) had Pravara Samhanana while Avar Samhanana was seen in 2 (3.33%) patients only.

**Pramana wise distribution of 60 Amlapitta patients:** About 44 patients i.e., 73.33% of registered patients had Madhyama Pramana, only 3 (5%) patients had Avar Pramana and 13 (21.67%) were having Pravara Pramana.

**Satmya wise distribution of 60 Amlapitta patients:** Majority of patients 37 (61.67%) had Madhyama Satmya followed by 13 (21.67%) patients with Avar Satmya and 10 (16.67%) patients with Pravara Satmya.

**Satva wise distribution of 60 Amlapitta patients:** Madhyama Satva was found with 40 (66.67%) patients and 14 (23%) had Avar Satva rest 6 (10%) had Pravara Satva.

**Ruchi wise distribution of 60 Amlapitta patients:** Ruchi of maximum no of patients lied in Madhyama with 29 (48.33%) patients, Avar stands second in order having 20 (33.33%) and Pravara is minimum with 11 (18.33%).

**Abhyavaharana Shakti wise distribution of 60 Amlapitta patients:** In this study, 30 (50%) patients were having Madhyama Abhyavaharana shakti and 25 (41.67%) with Avar rest 5 (8.33%) remained in Pravara.

**Jarana Shakti wise distribution of 60 Amlapitta patients:** In the present study, 36 (60%) patients were having Madhyama Jarana-shakti, Avar was in 18 (30%) and only 6 (10%) registered patients had Pravara Jarana-shakti.

**Vyayama Shakti wise distribution of 60 Amlapitta patients:** Vyayama-shakti in category of Madhyama was found in 37 (60%) patients, 18 (30%) patients had Pravara Vyayama-shakti and only 5 (8.33%) no. of patients had Avar Vyayama-shakti.

Table 1: Plan of study

Groups	Intervention	No. of Registered patients	No. of patients completed therapy	Duration of therapy
A	Mudga Yusha and Kwathita Sheeta Jala (Boiled and cooled water).	20	20	90 days
B	Yoga modalities.	20	20	90 days
C	Mudga Yusha and Kwathita Sheeta Jala (Boiled and cooled water) with Yoga modalities.	20	20	90 days

**Table 2: Yoga and Pranayama**

S. No.	Yoga	Duration (in Minute)
1	Vajrasana	3
2	Vakrasana	3
3	Bhujangasana	3
4	Pavanamuktasana	3
5	Shavasana	3
6	Nadi Shodhan Pranayama	8
7	Sheetali Pranayama	7
<b>Total time</b>		<b>30 minutes</b>

**Table 3: Effect of Therapy on Group A**

Variable	F/U	Median	Mean Rank	Z	P- Value	% Relief	Result
Avipaka	BT	2	7.50	3.742	< .001	33.33	H.S.
	AT	1.50					
Klama	BT	2	6.50	3.464	< .001	37.5	H.S.
	AT	1					
Utklesha	BT	1.50	5.50	3.051	< .002	47.83	H.S.
	AT	1					
Tikta Amla Udgara	BT	2	7.50	3.397	< .001	52.63	H.S.
	AT	1					
Gaurava	BT	2	6.50	3.217	< .001	45.45	H.S.
	AT	1					
Hrit-Kantha Daha	BT	2	8.50	3.624	< .001	54.76	H.S.
	AT	1					
Aruchi	BT	2	7.00	3.500	< .001	37.84	H.S.

BT: Before Treatment, AT: After Treatment

**Table 4: Effect of Therapy on Group B**

Variable	F/U	Median	Mean Rank	Z	P Value	% Relief	Result
Avipaka	BT	2	9.50	3.906	< .001	52.27	H.S.
	AT	1					
Klama	BT	2	5.50	3.051	< .002	37.93	H.S.
	AT	1					
Utklesha	BT	1.50	5.00	2.810	< .005	44.00	H.S.
	AT	1					
Tikta Amla Udgara	BT	2	7.50	3.494	< .001	43.59	H.S.
	AT	1					
Gaurava	BT	2	6.50	3.217	< .001	46.88	H.S.
	AT	1					
Hrit-Kantha Daha	BT	2	7.00	3.419	< .001	41.67	H.S.
	AT	1					
Aruchi	BT	2	7.50	3.416	< .001	50.00	H.S.
	AT	1					

BT: Before Treatment, AT: After Treatment

**Table 5: Effect of Therapy on Group C**

Variable	F/U	Median	Mean Rank	Z	P Value	% Relief	Result
Avipaka	BT	2	9.50	3.80	< .001	68.89	H.S.
	AT	1					
Klama	BT	2	7.00	3.26	< .001	61.11	H.S.
	AT	1					
Utklesha	BT	1	5.00	2.74	< .006	56.52	H.S.
	AT	0					
Tikta Amla Udgara	BT	2	7.50	3.44	< .001	70.27	H.S.
	AT	0					
Gaurava	BT	2	8.00	3.48	< .001	73.53	H.S.
	AT	0					
Hrit-Kantha Daha	BT	2	8.00	3.45	< .001	76.32	H.S.
	AT	0					
Aruchi	BT	2	8.00	3.46	< .001	82.05	H.S.
	AT	0					

BT: Before Treatment, AT: After Treatment

Table 6: Intergroup Comparison of Effect of Therapies

Variable	Group	Median of diff.	Mean Rank	Z	P- Value	Result
Avipaka	Group A	1	20.90	13.94	< .001	H.S.
	Group B	1	31.30			
	Group C	1	39.30			
Klama	Group A	1	28.30	4.45	< .108	N.S.
	Group B	.50	26.60			
	Group C	.50	36.60			
Utklesha	Group A	.50	30.45	.080	< 0.961	N.S.
	Group B	0	29.83			
	Group C	0	31.23			
Tikta Amla Udgara	Group A	1	29.65	2.86	< 0.239	N.S.
	Group B	1	26.56			
	Group C	1	35.28			
Gaurav	Group A	1	27.80	3.29	< 0.193	N.S.
	Group B	1	27.80			
	Group C	1	35.90			
Hrit-Kantha Daha	Group A	1	31.68	6.09	< 0.048	S
	Group B	1	23.55			
	Group C	1	36.28			
Aruchi	Group A	1	24.08	8.01	< 0.018	S
	Group B	1	28.83			
	Group C	1	38.60			

Table 7: Relief wise Intergroup Comparison

Symptoms	% Relief of Group A	% Relief of Group B	% Relief of Group C
Avipaka	33.33	52.27	68.89
Klama	37.5	37.93	61.11
Utklesha	47.83	44	56.52
Tikta Amla Udgara	52.63	43.59	70.27
Gaurava	45.45	46.88	73.53
Hrit-Kantha Daha	54.76	41.67	76.32
Aruchi	37.84	50	82.05

Table 8: Total effect of Therapies

Group	F/U	Median	Mean Rank	Z	P- Value	% Relief	Result
Group A	BT	12.50	10.50	3.938	< .001	44.13	H.S.
	AT	6.50					
Group B	BT	12	10.50	3.937	< .001	45.68	H.S.
	AT	6					
Group C	BT	12	10.50	3.93	< .001	70.63	H.S.
	AT	3					

BT: Before Treatment, AT: After Treatment

Table 9: Intergroup comparisons on total effect of Therapies

Group	Median of diff.	Mean Rank	Z	P-Value	Result
Group A	5	22.15	24.68	< .001	H. S.
Group B	5.5	23.15			
Group C	9	46.20			

Table 10: Total clinical effect of Group A, Group B and Group C after Treatment

Criteria	Group A		Group B		Group C	
	No. of patients	%	No. of patients	%	No. of patients	%
Complete remission 100%	0	0	0	0	0	0
Marked improvement 76% to 99%	0	0	0	0	9	45
Improvement 51% to 75%	6	30	7	35	9	45
Mild improvement 26% to 50%	13	65	11	55	2	10
Unchanged Below 25%	1	5	2	10	0	0

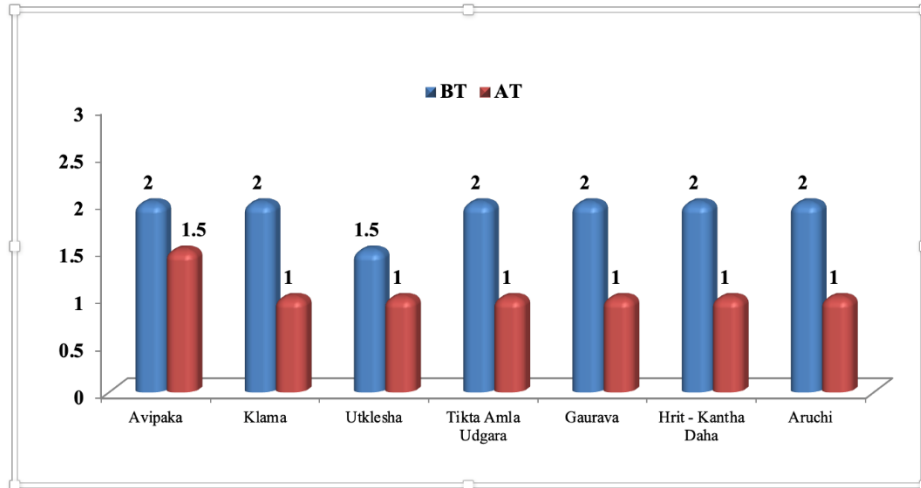


Figure 1: Percentage of Relief of Therapy on Group A

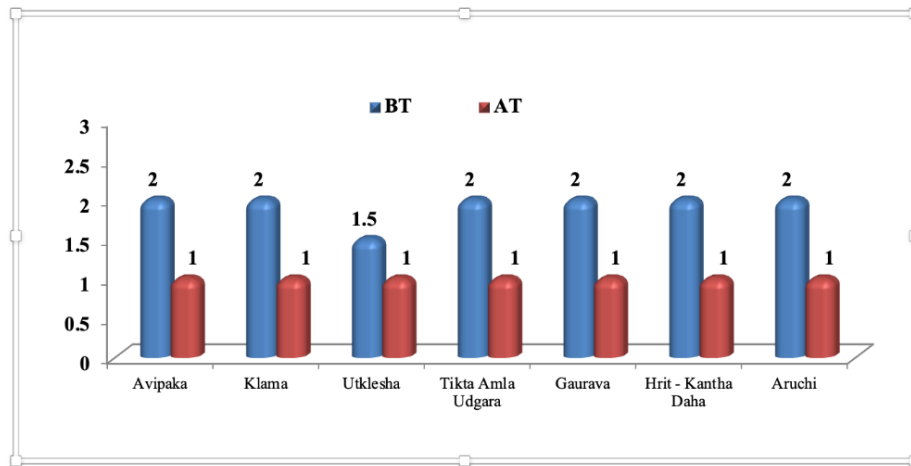


Figure 2: Percentage of Relief of Therapy on Group B

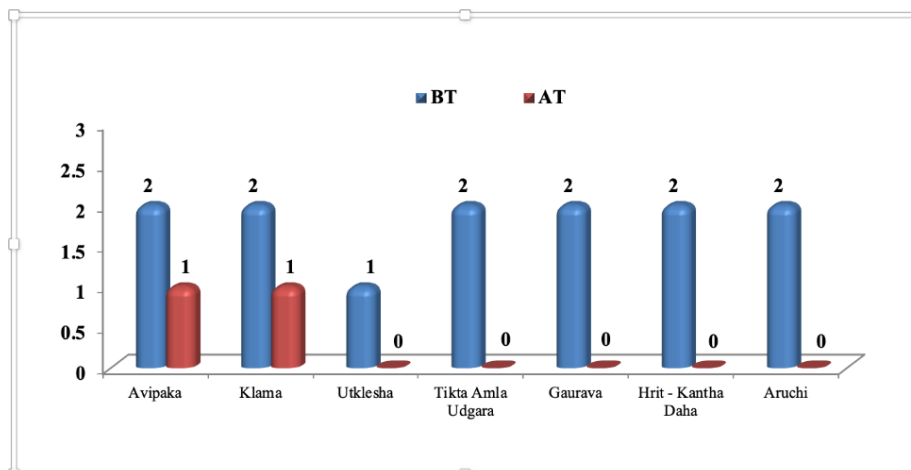


Figure 3: Percentage of Relief of Therapy on Group C

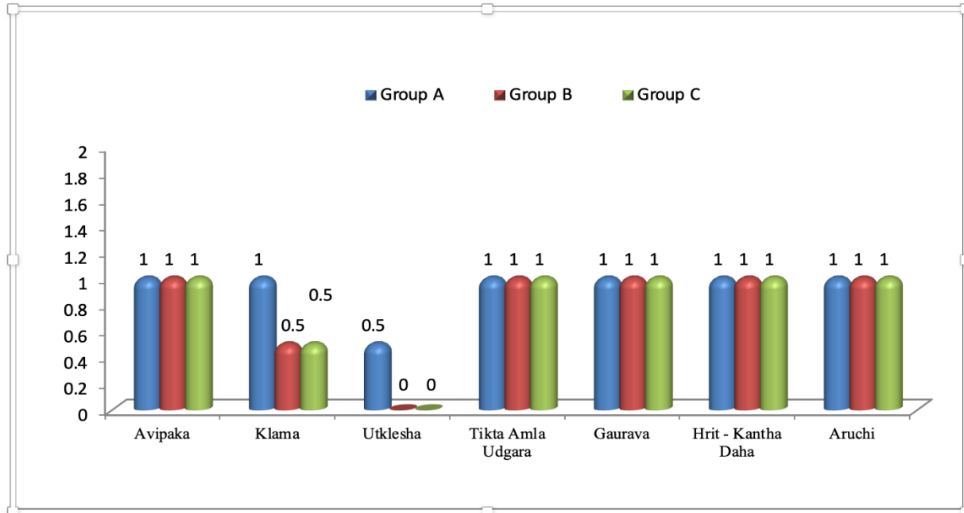


Figure 4: Comparative effect of Therapies

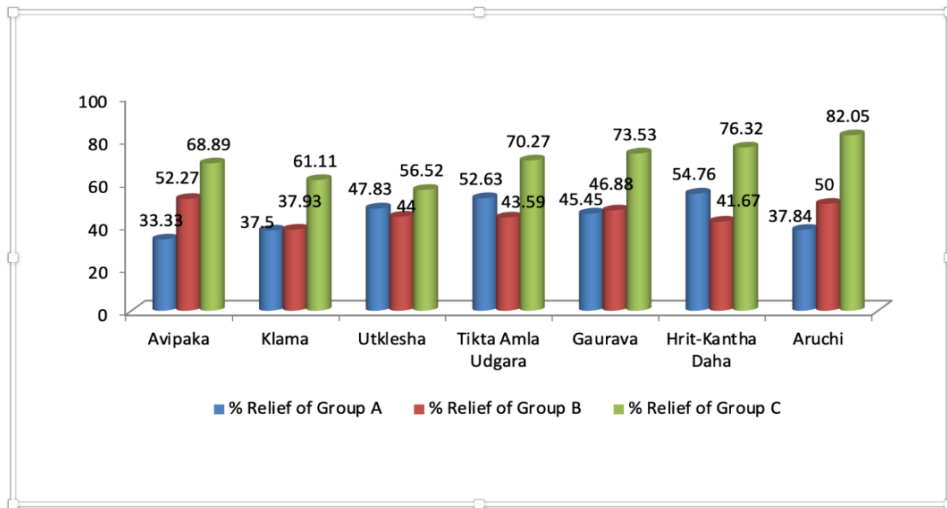


Figure 5: Relief wise Intergroup Comparison of Therapies

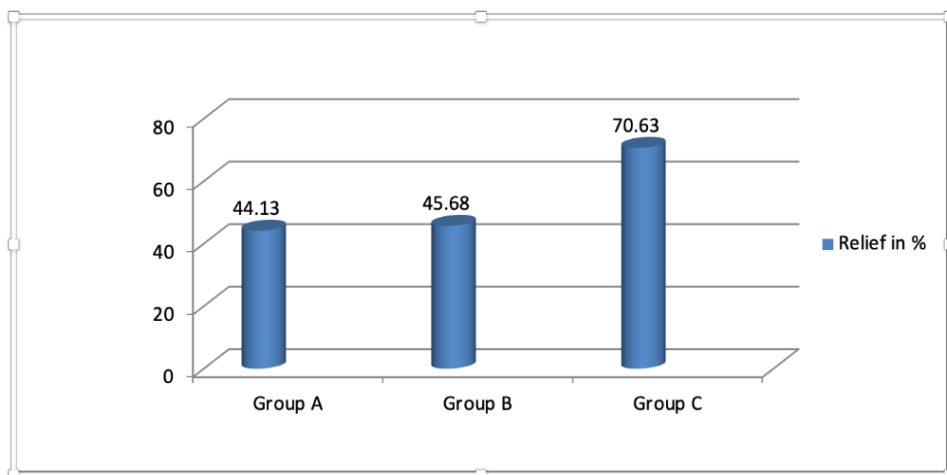


Figure 6: Total percentage of relief of therapies



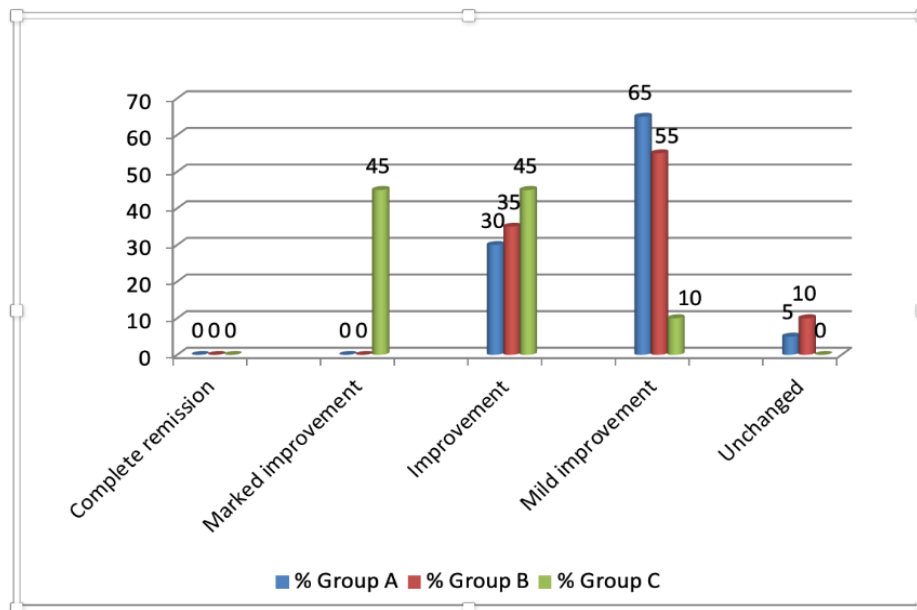


Figure 7: Total clinical effect of trials

## RESULT

The results of therapy have been evaluated in two steps with the help of statistical methods. In the first step, intra-group study was carried out by evaluating within the group before and after the treatment in each three groups separately. Furthermore, in the second step, the intergroup study was conducted between three groups of therapies by comparing to each other.

### Effect of Therapy on Group A

Table 3 reflects that Group A (Mudga Yusha and Kwathita Sheeta Jala) shows highly significant (HS) on Avipaka, Klama, Utklesha, Tikta Amla Udgara, Gaurava, Hrit-Kantha Daha and Aruchi, as P-value is obtained less than 0.01 for each variable. Meanwhile, the relief is found 33.33%, 37.5%, 47.83%, 52.63%, 45.45%, 54.76%, and 37.84% respectively, as shown in Figure 1. Therefore, Group A (Mudga Yusha and Kwathita Sheeta Jala) is statistically high significant in all symptoms of Amlapitta. (Table 3).

### Effect of Therapy on Group B

Table 4 shows Group B (Yoga modalities) is highly significant result as P-value is obtained less than 0.01 on Avipaka, Klama, Utklesha, Tikta Amla Udgara, Gaurava, Hrit-Kantha Daha and Aruchi. However, the relief is found 52.27%, 37.93%, 44%, 43.59%, 46.88%, 41.67% and 50% for the respective variables, as shown in Figure 2. Therefore, Yoga modality shows statistically high significant results in all the symptoms of Amlapitta. (Table 4).

### Effect of Therapy on Group C

Table 5 displays that P-value is found less than 0.01 for all the variables, which indicates that Group C (Mudga Yusha and Kwathita Sheeta Jala with Yoga modalities) shows highly significant result on Avipaka, Klama, Utklesha, Tikta Amla Udgara, Gaurava, Hrit-Kantha Daha and Aruchi. Moreover, the relief is achieved 68.89%, 61.11%, 56.52%, 70.27%, 73.53%, 76.32% and 82.05%, as illustrated in Figure 3. Hence, Group C (Mudga Yusha and Kwathita Sheeta Jala along with Yoga modalities) shows statistically high significant results in all the

symptoms of Amlapitta and overall good results on different parameters of Amlapitta (Table 5).

### Inter group study

The statistical analyses were carried between three classified groups A, B and C by comparing the effects of therapies (symptoms wise) as presented in Table 6 and comparative effect of therapies were shown in Figure 4. Meanwhile, the results of relief wise comparison were shown in Table 7 and Figure 5. In addition to this, total relief of therapies and multiple comparisons between three classified groups (A, B and C) have been presented in the Table 8 and 9 respectively.

### Intergroup Comparison of Effect of Therapies

In the inter-group comparison, that there is highly significant difference in effect of all three interventions in Avipaka. In the Avipaka, Group C (i.e., Mudga Yusha and Kwathita Sheeta Jala along with Yoga modalities) shows better results than Group B (i.e., Yoga modalities) and Group A (i.e., Mudga Yusha and Kwathita Sheeta Jala). In the Hrit-Kantha daha and Aruchi, there is significant difference in the effect of all three interventions. In the Hrit-Kantha daha and Aruchi, Group C shows better results than Group A and Group B. Non-significant difference in the effect of all three interventions in Klama, Utklesha, Tikta Amla Udgara, and Gaurava. That means all interventions shown equal effect on Klama, Utklesha, Tikta Amla Udgara, and Gaurava (Figure 4, Table 6).

### Relief wise Intergroup Comparison

Relief wise intergroup comparison in this study shows that Group A therapy (Mudga Yusha and Kwathita Sheeta Jala) is slightly more effective than Group B Yoga modalities therapy in some symptoms of Amlapitta such as Utklesha, Tikta Amla Udgara and Hrit-Kantha Daha. Similarly, in some symptoms of Amlapitta such as Avipaka, Gaurava and Aruchi, Group B Yoga modalities is more effective than Group A. Group A and Group B therapies have almost equal effect in Klama. However, the therapy of Group C (Mudga Yusha and Kwathita Sheeta Jala with Yoga modalities) has found to be more effective than Group A and Group B in all symptoms of Amlapitta (Figure 5, Table 7).

### Total effect of Therapies

Above table shows the comparison between three classified groups with symptoms wise total effect of therapy. It may be noted that, there is highly significant result of all three intervention on Amlapitta. Therefore, all the three interventions are highly effective in Amlapitta disease.

The percentage of total relief of Group A (Mudga Yusha and Kwathita Sheeta Jala), Group B (Yoga modalities) and Group C (therapy Mudga Yusha and Kwathita Sheeta Jala with Yoga modalities) were found 44.13%, 45.68% and 70.63%, as given in Figure 6. Hence, therapy of Group C is most effective than therapy of Group A and Group B, as shown in (Table 8).

### Total clinical effect of Group A, Group B, and Group C after Treatment

Table 9 reflects that there is non-significant difference between the effect of Group A and Group B and both interventions have same effect on Amlapitta. However, there is significant difference between the effects of Group C. That means therapy of Group C has better effect than Group A and B. (Table 9)

### Total clinical effect of trials

The overall assessment has been evaluated on the basis of average improvement in the percentage of relief for each Group A, B and C and it has been presented in Table 10 and Figure 7.

In **Group A** (Mudga Yusha and Kwathita Sheeta Jala), 30% patients were showed improvement, 65% patients were mild improvement and 5% patients were showed Unchanged.

In **Group B** (Yoga modalities), 35% patients were showed improvement, 55% patients showed mild improvement and 10% patients were Unchanged.

In **Group C** (Mudga Yusha and Kwathita Sheeta Jala with Yoga modalities), 45% patients were marked improvement, 45% patients were showed improvement and 10% patients were showed mild improvement.

## DISCUSSION

### Probable Mode of Action of Mudga Yusha

Pitta dosha vitiates due to unhealthy diet and improper lifestyle habits, thus Pitta becomes Vidagdha and creates Amlapitta. Mandagni and Aama are also responsible for disease manifestation. Amlapitta is Pitta Pradhan disease with association of Kapha and Vata Dosha.

Mudga have Kashaya, Madhura rasa and Sheeta-virya, Ruksha (drying), Laghu (light to digest), Sheeta virya (cooling effect), Kaphapitta shamaka<sup>9</sup> and Deepana (digestive enhancer) properties which are responsible for the management of Amlapitta.

Properties of Yusha are Rochana (Ruchikara), Deepana (enhance appetite), Agni-varadhana (improve digestion and metabolism), mainly it brings comfortable, nourishment and happiness. Vatahara due to its Snigdha and Ushna Guna, Pittahara due to its Snigdha and Kashaya Guna and Kapha-hara due to its Ushna and because of Sanskara qualities of Yusha.<sup>10</sup>

Mudga Yusha has Deepana (appetizer) properties which enhance the Agni and perform proper digestion, as a result prevents the

Aama and Shukta (Amla) formation thus relieving the symptoms of Amlapitta. Mudga Yusha has also Sheetala (cooling effect), Laghu (light), Madhur (sweet), Daha-shamaka (diminish burning sensation) and Tridosha-hara properties. Above all properties are present in Mudga Yusha, due to this it improves digestion, prevents formation of Aama and prevents vitiation of Doshas. Hence Mudga Yusha helps in improving the disease.

### Probable Mode of Action of Kwathita Sheeta Jala

Kwathita Sheeta Jala (boiled and cooled water) are Anabhishyandi (doesn't block the channels) and Laghu (easy to digest).<sup>11</sup> Water taking at regular interval in small quantities (As muhurmuhi vidhi) has enhanced Jatharagni, due to this the digestion occurs in proper way, thus prevents the formation of Aama and Vidagdha Anna. The symptoms of Amlapitta are relieved due to the above reasons. Along with this Kwathita Sheeta Jala (boiled and cooled water) are also useful in burning sensation, diarrhoea, vitiated blood, fainting, toxic, thirst, vomiting and giddiness. It is always wholesome, Tridosha shamaka specially associated with Pitta dosha.<sup>12</sup> Due to the above properties of Boiled and cooled water, it cures the symptoms of Amlapitta.

### Discussion on Probable Mode of Action of Yoga Modalities

According to Vagbhata all the diseases are caused by Mandagni. Acharya Kashyap also described Mandagni is a main cause of Amlapitta. Mental stress, anxiety, anger are also main contributory factors of Amlapitta. Because of causative factors, Vatadi-dosha are aggravated especially Pitta dosha, due to this Mandagni starts. As a result of Mandagni ingested food is converted into Aama and Vidagdha. Thus produced Vidagdhaanna gets retained in the Amashaya leading to formation of Shukta (Amla) resulting in symptom of Amlapitta.

According to literary information Yoga modalities like Asana's, Nadi Shuddhi and Sheetali Pranayam result in various beneficial effects, it removes mental stress as well as promotion of Agni vardhana which leads to the treatment of Amlapitta. The main work of yoga is "Chitta Vritti Nirodha" means prevention of mental variations<sup>13</sup>. Moreover, Yoga is a state of mind equilibrium in the condition of success and failure which relieves mental stress.

Asana is the first step of Hatha yoga, which produces lightness of the body, enhances strength and health. Lean body, pleasant face, clear and melodious voice, eyes clear of blemishes, bright healthy body, abstinence, enhancement of Agni and purity of all Nadis are the characters of Hatha yoga siddhi.<sup>14</sup> Pranayama which is a part of Ashtanga Yoga; it removes mental stress and relieves all disease. In Ayurveda Yoga can be correlated with Vyayama or physical exercise. Due to physical exercise, there is lightness in the body, increases working power, stability, tolerance of difficulties due to stress, diminution of Vatadi doshas and enhances Jatharagni or digestive fire. Moreover, Yoga modalities reduce mental stress and increases Agni which promote proper digestion due to this Amlapitta is cured.

Pranayama regulates inspiration and expiration, fills the lungs with clean air which controls the flow of energy throughout the body, due to this the body feels comfortable and full of energy, mind becomes calm and pleasant. The benefits of Nadi shodhana Pranayam are lean body, glowing physique, control breath and enhance Jatharagni.<sup>14</sup>

Yoga Asana's enhances the blood supply of digestive organs which improves digestion and relieves constipation. It is also

promoting healing of gastric and peptic mucosa. It may be for the above reasons; there was effect of Yoga modalities in Amlapitta. The different kinds of Yoga Asana are:

**Vajrasana:** Vajrasana improves blood circulation in intestine and stomach. It is beneficial to enhance the efficacy of complete digestive system and contributes mainly to cure hyperacidity and peptic ulcer.

**Vakrasana:** It is excellent yoga posture for the abdominal organs. It helps in making the abdominal muscles stronger by stretching the spine. It compresses and massages the abdominal organ, thus normalize the secretion of digestive juice which improves digestion and reduced the symptoms of Amlapitta.

**Bhujangasana:** It is Agni vardhana and Sarva roga-nashan. Due to Agni vardhana it reduces the production of Aama and Shukta which relieves the disease manifestation. This posture, strengthens the abdominal muscles and stretches the spine. Moreover, this posture is valuable for every part of the abdominal organs; it stimulates the appetite and removed flatulence.

**Pavanamuktasana:** Due to this posture self-massage of the abdominal muscles and organs occurs, increases blood circulation and stimulate nerve activity of abdominal organs. It helps to reduce different type of abdominal malfunctions.

**Shavasana:** This posture is obliterating fatigue and provide relax to the mind which is the reason for reducing the symptoms of Amlapitta. When breath is under control, mind also becomes calm and stable which removes anxiety and stress thus reduces disease manifestation.

#### The different kinds of Pranayama are:

**Nadi shodhana Pranayama:** According to ancient Yoga literature, 'Nadi' means a channel or passage by which Prana vayu flows inside the body and purifies it, thus strengthens health along with calming the mind.

**Sheetali Pranayama:** Sheetali Pranayama completely cures diseases like Gulma, Pliha roga, Pitta Janya rogas, Trishna roga and Visha janya diseases, cools the body and mind.<sup>14</sup> It is also diminished Ajeerna and Kapha-Pittaja diseases. Sheetali Pranayama is a main Yoga modality to treat Amlapitta due to its cooling effect.

Before doing Sheetali Pranayama we have to perform Asana's and Nadi Shuddhi-kriya for purification of body. So, we have included Asana's and Nadi-shuddhi Pranayama in our Yoga modality. Yoga is an efficient and natural ways to improve the work of digestive system as well as it is also easiest way to cure acidity. Suitable diet, lifestyle modifications and Yoga are helpful in the treatment of all kinds of diseases. In case of Amlapitta certain Asana's and Pranayama are said to be a boon, one such Pranayama which contributes mainly to cure Amlapitta is Sheetali Pranayama.

For the management of Amlapitta we can advise Yogasana and Pranayama i.e., Vajrasana, Vakrasana, Bhujangasana, Pavanamuktasana, Shavasana, Nadi-shodhana and Sheetali Pranayama. Due to Yoga posture, there is abdominal compression and massage of the digestive organs. This enhances the function of digestive organs and improves blood circulation. All Yoga Asana's and Nadi-shodhana and Sheetali Pranayama helps physical strength of body as well as mind stability which can also reduce mental stress. Moreover, cooling properties of

Sheetali Pranayama balances the aggravated Pitta doshas. As a result; Yoga modalities can cure the symptoms of Amlapitta.

#### CONCLUSION

Amlapitta is the most common problem in present era which is found to be a major concern in Ayurveda. Amlapitta has not described separately in Brihatrayee. However, Kashyapa and Madhavakara recognized it separately with detailed description of Nidana, Samprapti and Lakshanas etc. Due to changed lifestyle, unhealthy food habits, factors against dietetic code, social structures, mental stress, panic and uncertainties in the work, all these causative factors lead to Agni dushti, which causes formation Shukta and Aama. Therefore, manifestation of Amlapitta disease is occurred. In addition to this, Mandagni is also the main cause of disease manifestation. Amlapitta is Pitta Pradhana disease with association of Kapha and Vata Dosh. In the present study, it has been perceived those maximum registered patients were male, middle age group, married, house wife, educated, middle socio-economic status. Moreover, higher percentages of patients were suffered with Mandagni, Madhyama koshta. Most of the registered Amlapitta patients were taken vegetarian diet, Vishamashana, Amla and Lavana rasa, Snigdha-Ushna and Guru guna pradhana, proper Nidra. Maximum Amlapitta patients were addicted with tea, coffee, tobacco, and doing their work with sitting position meanwhile those patients were satisfied with their work profile. Higher percentages of registered patients were having Vata Pitta pradhana prakriti, Raja Mansika prakriti. Additionally, more Amlapitta patients were having Madhyama-Sara, Samhanana and Pramana, Madhyama-Satmya and Satva, Madhyama-Ruchi, Abhyavaharana Shakti and Jarana Shakti, Madhyama-Vyayama Shakti and Vaya Bala. Mudga Yusha has significant properties such as Deepana, Agni vardhana and it prevents the formation of Aama. Likewise, Sheetala, Laghu, Madhura, Dahashamaka and Tridosha nashaka are also the additional properties of Mudga Yusha. Laghu (light to digest) and Tridoshashamaka are the vital characteristics of Kwathita Sheeta Jala (Boiled and cooled water). Therefore, Jatharagni is enhanced, when it is taken as muhurmuhi vidhi. Hence, Mudga Yusha and Kwathita Sheeta Jala (boiled and cooled water) help in breaking the pathogenesis of Amlapitta. Mental stress is reduced by Yoga modalities and the Agni is enhanced with the help of Yoga modalities, which promotes the digestion in a proper manner. Therefore, Amlapitta disease is cured by Yoga modalities. In this study, the therapy of Group C shows better result than Group A and Group B. Hence, Mudga Yusha and Kwathita Sheeta Jala (boiled and cooled water) along with Yoga modalities is more effective to control Amlapitta disease.

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