# A cross-sectional study on Aharaj (Dietary) and vihara (lifestyle) factors responsible for Amla pitta (Hyperacidity)

Abhilasha Girde<sup>1</sup>, Dr. Anju Thaware<sup>2</sup>, Shweta Parwe<sup>\*3</sup>, Milind Nisargandha<sup>4</sup>, Mamata Nakade<sup>5</sup>

 B.A.M.S. student, Mahatma Gandhi Ayurved College Hospital & Research Centre, Salod (H.), Datta Meghe Institute of Higher Education & Research (D.M.I.H.E.R.) (D.U.), Wardha, Maharashtra, India.

2. Associate Professor Department of Samhita Siddhant, Mahatma Gandhi Ayurved College, Hospital & Research Centre, Salod (H), Datta Meghe Institute of Higher Education & Research (D.M.I.H.E.R.) (D.U.), Wardha, Maharashtra, India.

 Professor and HOD, Department of Panchakarma, Mahatma Gandhi Ayurved College, Hospital & Research Centre, Salod (H), Wardha, Datta Meghe Institute of Higher Education & Research (D.M.I.H.E.R.) (D.U.), Wardha, Maharashtra, India. ORCID ID: https://orcid.org/0000-0002-6077-146X Scopus ID- 55627109900.

4. Associate professor, Saveetha Medical College and Hospital, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai, India - 602105, Phone 9423276429 Email-manisargandha@gmail.com. ORCID ID: https://orcid.org/0000-0001-6523-4797 Scopus ID-55627206200, Web of Science Researcher ID: ABC-6364-2020.

5. Professor and Head of Panchakarma Department, Dr D Y Patil College of Ayurveda and Research Centre, Pimpri, Pune-18, Dr D Y Patil Vidyapeeth DPU (Deemed to be University), Pimpri, Pune.

#### Corresponding author name and address:

Dr Shweta Parwe

Professor and HOD, Department of Panchakarma, Mahatma Gandhi Ayurved College, Hospital & Research Centre, Salod (H), Wardha, Datta Meghe Institute of Higher Education & Research (D.M.I.H.E.R.) (D.U.), Wardha, Maharashtra, India.

#### Abstract:

Background: In the competitive, stressful 21st century, having more incredible speed and accuracy is the top requirement to meet needs. Humans have limitless demands, yet there are less resources available to meet those needs as they increase. Man is therefore attempting to make use of his time to meet these demands without considering his health He is making lifestyle, dietary, and behavioral changes, as well as inviting several behavioral disorders, including Amlapitta. The literature of Ayurveda speaks primarily on Amlapitta illness induced by Manasika Bhava, Vihara, and Ahitakara Ahara. Avoiding such Nidana can so help to manage the condition. As a result, Aharaja and Viharaja have been given consideration in this study. As no considerable works were done w.s.r to Nidana, the study was "Observational study of Aharaj and viharaj factor responsible for Amlapitta ".Aim: Evaluation of dietary (Aharaj) and lifestyle (viharaj) factors responsible for diseases like Amlapitta. Objectives: 1. To elaborate on Amlapitta Lakshanas mentioned in Ayurvedic Samhitas (Acharyas) with Gastritis and Gastric ulcer. 2. To study different types of Prakriti in various Samhitas. 3. To create awareness in the population of Wardha city regarding Amlapitta and its relation with Prakruti, Aharaj & Viharaj factors. Method: An observational study was conducted among patients aged 15 to 40 in Wardha District. The validated questionnaires to assess the symptoms of Amlapitta were prepared. The Patients of age group between 15 to 40 years were personally interviewed on the basis of predesigned structured proforma. Data was analyzed statistically by simple proportions. Ethical clearance and permission were obtained from Institutional Ethical Committee. Permission was secured through a formal letter. Before interviewing, written consent was obtained from the respondent. Result: It was drawn based on the data obtained from the questionnaires, and observations were removed from the collected data. Conclusion: based on the information gathered to analyze Amlapitta predominance in various forms of Aharaj (dietary) and Viharaj (lifestyle) factors, some nutritional factors were found for amlapitta.

Keywords: Amlapitta, Diet and Lifestyle, Ahara, Vihara, hyperacidity.

#### **INTRODUCTION**:

Ayurveda Throughout history, mankind has been directed by the science of life, an ancient system of medicine with several principles for staying well and avoiding bodily, mental, and spiritual

ailments. Pursuing Dharma, Artha, Kama, and Moksha is the main goal of life. The primary factor in achieving Purushartha's goals is health (Trikamji, Y., 2008). You can acquire health by adhering to Ayurveda principles. To maintain a person's health, Ayurveda has placed greater emphasis on preventative measures than curative ones. A sedentary lifestyle is increasingly associated with the modern period. Man has been compelled to resume lousy eating habits by this way of living. When individuals had more leisure in the past, they would eat well-balanced meals. Yet nowadays, individuals tend to prefer quick meals like fast food and junk food, making them susceptible to several ailments. Today, we neglect to care for our health, as well as our eating patterns and lifestyles. We don't realize the adverse effects of modern Diet and lifestyle until we get into problems. So, we might assume that poor eating and lifestyle choices are the primary cause of many diseases. The health science of Swasthavritta, which places a strong emphasis on the principles of Dinacharya, Ratricharya, and Rutucharya, will keep a person in good health (Bhavamisra, S., 2010, Varma, S. et al., 2022.); additionally, by adhering to other principles like Sadvritta, Trayopasthamba, Navegandharaneeya, Ahara, and Vihara, one can maintain health and longevity free from disease. One of the 40 Nanatmaja Pitta Vikaras, Amlapitta, is caused by an improper diet and way of life, which causes Pitta Dosha to become Vidagdata, which in turn results in Shuktapaka and Amlapitta (Maricha, K., 2008). Thus, unhealthy eating and lifestyle choices were emphasized more in Ayurvedic literature as a Nidana for the disease Amlapitta. In the current era of urbanization and industrialization, humankind has changed significantly. Man has chosen an unhealthy diet and lifestyle in an effort to keep up with that speed, which has led to the Amlapitta disease.

Due to the exact underlying causes and similar signs and symptoms to gastritis (Hussain, S., 2019) non-ulcer dyspepsia (Wiener, C., et al, 2012) hyperchlorhydria (Hyperacidity, 2019) and hypochlorhydria (Kadam, S.K., et al, 2020) as well as its close resemblance to these conditions in Ayurvedic terminology, it is preferable to think of Amlapitta as a syndrome (acid reflux syndrome) (Fauci Anthony, et al, 2008) rather than a specific gastrointestinal disease in its chronic stage. As people adopt unpredictable lifestyles and change their eating habits to include ready-to-eat commercial junk food instead of homemade cuisine, gastrointestinal illnesses develop into lifestyle diseases. The National Digestive Diseases Information Clearinghouse estimates that there are 5 million people in India who have peptic ulcers and 10,572,391 people who have gastritis (1987) (Everhart, J.E., 1994). According to Acharya Charaka, indulging in Ajirna (indigestion),

Atibhojana (overeating), Vishama Bhojana (irregular Diet), Asatmya (incompatible Diet) and Sandushta Bhojana produces Shuktata due to Agni Dushti (impairment of Agni) followed by Ama and Amavisha which further develops Ajirna (indigestion) by vitiating Dosha (Yadav, B., et al, 2019). Pitta Dosha is fundamentally aggravated by persistently eating incorrectly and leading an unpredictable lifestyle. This causes the disease to manifest as an acute case of indigestion called Vidagdhajirna, which, in the long term, due to ignorance, transforms into Amlapitta.

### **AIM AND OBJECTIVES:**

### Aim:

Evaluation of dietary (Aharaj) and lifestyle (viharaj) factors are responsible for diseases like Amlapitta in Wardha City

### **Objectives**:

1. To elaborate, Amlapitta Lakshanas mentioned in Ayurvedic Samhitas with Gastritis and Gastric Ulcers

2.To study different types of Prakriti in various Samhitas.

3.To understand the role of Aharaja and Viharaja Nidana in the manifestation of Amlapitta.

4.To create awareness in the population of Wardha city regarding Amlapitta and its relation with Prakruti, Aharaj & Viharaj factors.

#### MATERIAL AND METHODS:

**Source of Data:** From the OPD and IPD of the Kayachikitisa and Panchakarma Department at the Mahatma Gandhi Ayurved College Hospital and Research Centre in Salod (H), Wardha, patients for Amlapitta were chosen.

**Study Type**: Observational study

Study Design: cross sectional

Sample Size: 50 subjects

#### Data collection tools and process:

#### **Criteria for Inclusion:**

1. Patients having symptoms of Amlapitta;

2.Patients between the ages of 15 and 40;

- 3. Patients of either gender
- 4. Willing to participate;

5. Patients who had chronicity for more than five years and suffering from diseases like gastric ulcer, duodenal ulcer.

#### **Criteria for Exclusion:**

- 1. Patients with recent trauma
- 2. Other severe systemic disorders
- 3. having major illnesses like cardiac diseases, diabetes, cancer of the stomach etc., were

excluded from the trial.

4. Reluctant patients to participate

#### Diagnostic criteria: -

Sr no .	Clinical features
1	Avipakam (Indigestion)
2	Thikta/ amlaudgara (belching)
3	Aruchi (Anorexia)
4	Hriddaham (Burning sensation in epigastric region
5	Gauravam (Heavyness in chest)
6	Kantadaham (Burning sensation in throat)
7	Klamam (Tiredness)
8	Siroruja (Headache)
9	Trishna (Thrust)

#### Assessment Criteria:

A list of sign and symptoms heave been described for Amlapitta which is listed below.

Sr no .	Clinical features
1	Avipakam (Indigestion)
2	Thikta/ amlaudgara (belching)
3	Aruchi(Anorexia)

4	Hriddaham (Burning sensation in epigastric region
5	Gauravam (Heavyness in chest)
6	Kantadaham (Burning sensation in throat)
7	Klamam (Tiredness)
8	Siroruja (Headache)
9	Trishna (Thrust)

#### **Observation and Results:**

The observations in the study will be recorded systemically by the interview method, and the results were analyzed accordingly.

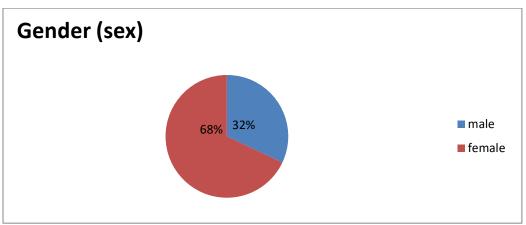
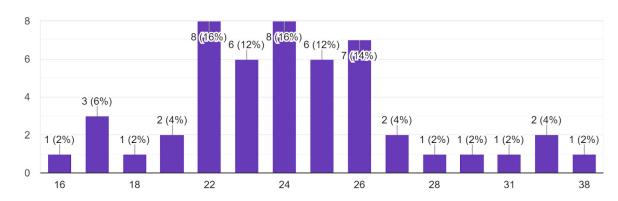


Table 1: Patients are distributed depending on their Gender (Sex).

Gender	No. of patients	Percentage
Male	16	32%
Female	34	68%
Total	50	100%

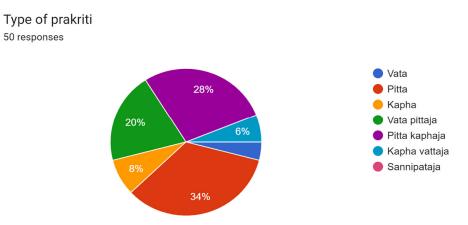
**In Table No. 1,** The wise Distribution of subjects is done where it was observed that 68% of subjects were female and the rest, 32 %, were male.



# Table 2: Patients are distributed depending on their Age.

Age	No of patient	Percentage
16year	1	2%
17year	3	6%
18year	1	2%
21 years	2	4%
22year	8	16%
23year	6	12%
24year	8	16%
25year	6	12%
26year	7	14%
27year	2	4%
28year	1	2%
29year	1	2%
31year	1	2%
35year	2	4%
38year	1	2%

Age 50 responses Table No. 2 – Distribution of patients depending upon the age group of patients, in which age group of 20-26 years of age patient is more prone to have Amlapitta due to their faulty lifestyle and Night awaking due to work and stress, and this leads to Gastritis.

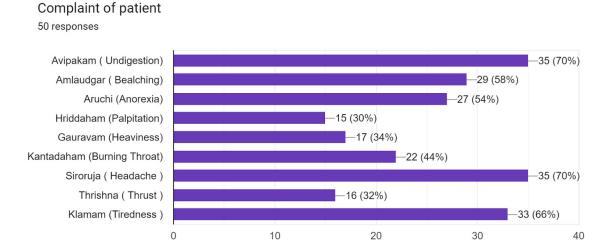


50 responses

Table no 3: Patients are distributed depending on the type of Prakruti

Percentage
4%
34%
8%
20%
28%
6%
0%
100%
-

**In Table 3**- Distribution of Patients depending to their Prakruti were given, in which 34% subjects were having Pittaj prakriti, 28% subject were having pitta kaphaja prakriti, 20% is having vata pittaja prakriti,8% subject is having kapha prakriti, 6% is having kapha vattaja prakriti and 4% subject is having vataja prakriti.



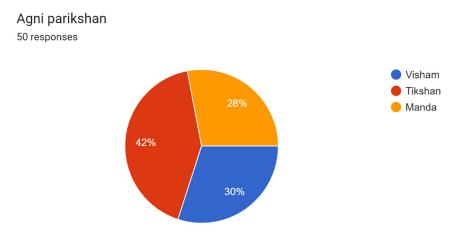
### Table no.4 Patients are distributed depending on the patient's complaint.

Sr	Complaint of patient	The patient gave no	Percentage
no.		responses	
1	Avipakam (Indigestion)	35	70%
2	Thikta/ amlaudgara (Bealching)	29	58%
3	Aruchi (Anorexia)	27	54%
4	Hriddaham (Palpitation)	15	30%
5	Gauravam (Heaviness)	17	34%
6	Kantadaham (Burning throat)	22	44%

7	Klamam (Tiredness)	33	66%
8	Siroruja (Headache)	35	70%
9	Trishna (Thrust)	16	32%

In Table 4- The assessment of complaints of patients along with the number of subjects is mentioned, where it is observed that 70% of subjects were having Avipakam and Siroruja symptoms, 66% of subject is having kalama sign, 58% subject is having Thikta / amlaudgar symptom, 54% of subject is having Aruchi symptoms, 44% subject is having kantadaham symptoms, 34% of subject were having Gauravam, 32% subject were having Thrishna symptoms, 30% of subjects were having Hriddaham.

### Table No. 5: Distribution of patients according to Agni



Agni	Patient	Percentage
Visham	15	30%
Tikshna	21	42%
Manda	14	28%

**Table 5** shows the Distribution of subjects according to Agni, in which Visham Agni is found in

 15 patients, Tikshna Agni is found in 21 patients, and Manda Agni is found in 14 patients.

These statistics show that Tikshna Agni is more common than Visham and Manda Agni.

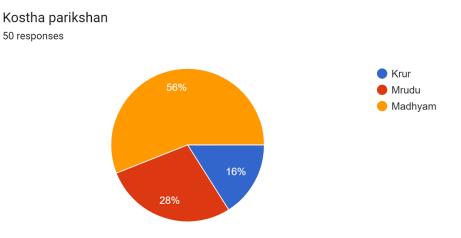
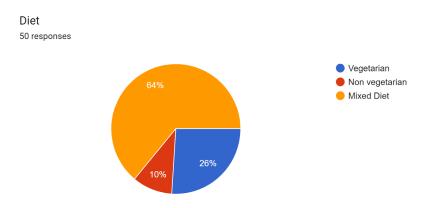


Table no. 6: Distribution of patients according to Koshtha Pariksha

Kostha	No of patient	Percentage
Krur	8	16%
Madhyam	28	56%
Mrudu	14	28%

**In Table 6,** the Distribution of subjects according to Kostha was given in which Krura Kostha was found in 8 Patients, Mrudu Kostha was found in 14 Patients, and Madhyam Kostha was found in 28 Patients.

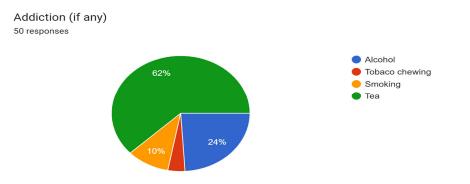
These statistics show that Madhyam Kostha is more common than Krura and Mrudu Kostha.



# Table no. 7 Distribution of patients according to the Diet

Diet	No of patient	Percentage
Vegetarian	13	26%
Nonvegetarian	5	10%
Mixed	32	64%

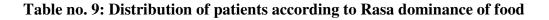
**In Table 7,** the Distribution of Patients according to Diet was given, where it was observed that 26% of subjects were on a Vegetarian diet, 64% of subjects were on a Mixed Diet, and 10% were on a vegetarian diet.

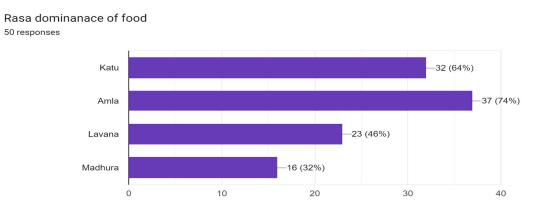


### Table no.8 Distribution patients according to Addiction

Addiction	No of patient	Percentage
Alcohol	12	24%
Tobacco chewing	2	04%
Smoking	5	10%
Теа	31	62%

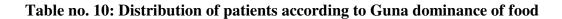
**In Table 8**, the Distribution of Patients according to Addiction was given, where it was observed that 62% of the subjects were having tea as an Addiction, 24% had Alcohol as an addiction,1hading smoking, and 4% were having tobacco chewing as an addiction

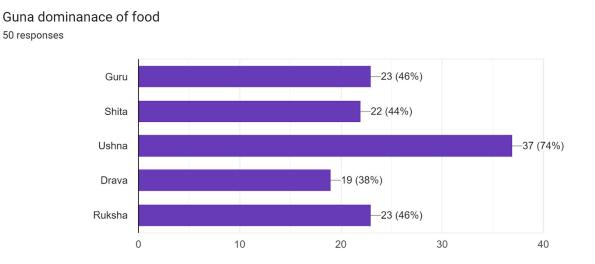




Rasa	No of patient	Percentage	
Katu (Spicy)	32	64%	
	27	7.40	
Amla (sour)	37	74%	
Lavan (salty food)	23	46%	
Madhura (sweet food)	16	32%	

**In Table 9**, the Distribution of Patients according to Rasa dominance of food was given, where it was observed that 74% of subjects were consuming Amla dominance rasa,64% of subjects were consuming katu rasa,46% of subjects were consuming lavan rasa and 32% were consuming madhur rasa food.

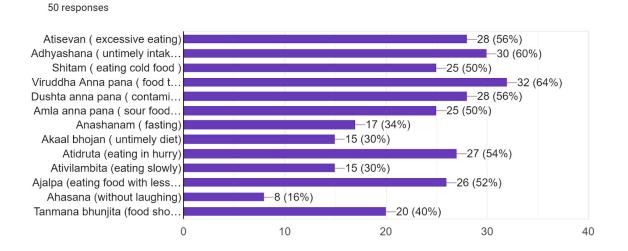




Guna	No of patient	Percentage
(properties)		
Guru (Heavy)	23	46%
Shita (Cold)	22	44%
Ushna (Hot)	37	37%
Drava (Liquid)	19	19%
Ruksha (dry)	23	23%

In Table 10, the Distribution of Patients according to Guna dominance of food was given, where it was observed that 46% of subjects consumed Guru dominance diet,44% had shita

food,37% had ushna dominance food,23% of the subjects had Ruksha dominant food, and 19% subject had Drava dominance food.



Aharaj hetu

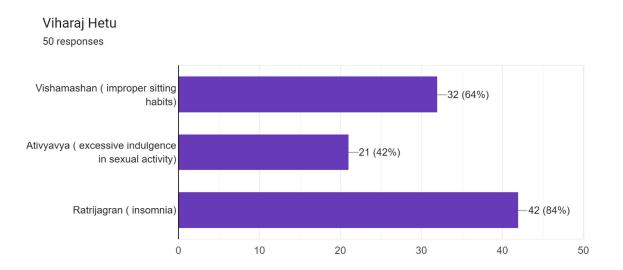
#### Table No. 11: Distribution of patients according to Aharaja Hetu

Aharaj hetu	No responses by patient	Percentage
Atisevan (more in quanty)	28	56%
Ashyashana	30	60%
Shitam (Cold food)	25	50%
Viruddha Anna pana	32	64%
Dushta Anna pana	28	56%
Amla Anna pana (Sour food)	25	50%
Anashanam	17	34%
Akaal bhojan (not in proper time)	15	30%

Atidruta	27	54%
Ativilambita (late in time)	15	30%
Ajalpa	26	52%
Ahasana	08	16%
Tanmana bhunjita	20	40%

**In Table 11** Distribution of Patients according to Aharaj hetu were given, where it was observed that 64% subject were having viruddha Anna pana as hetu,60% subject were having Ashyashana as hetu ,56% subject were having Dushta Anna pana and Atisevan as hetu ,54% were having Atidurta and 52% were having Ajalpa, 50% were having Amla Anna pana and shitam as Aharaj hetu.

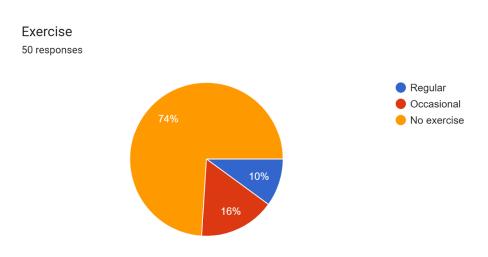




Viharaj hetu	No responses from the patient	Percentage
Vishamashan (eating at irregular hours)	32	64%
Ativyavya (excessive intercourse)	21	42%
Ratrijagran (remain awaken at night)	42	84%

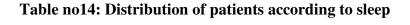
**In Table 12**, the Distribution of Patients according to viharaj hetu was given, where it was observed that 84% of the subjects had Ratrijagran as their Viharaj hetu, 64% of the subjects had Vishamasahan as their Viharaj hetu and 42% of the subject had Ativyavya as their Viharaj hetu.

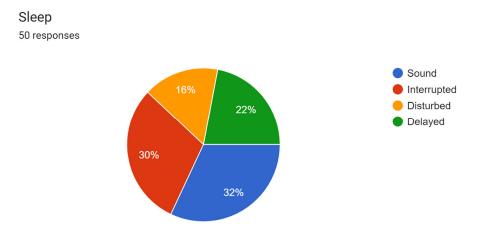
## Table 13: Distribution of patients according to Exercise



Exercise	No. of patient	Percentage
Regular	05	10%
Occasional	08	16%
No exercise	37	74%

In Table 13, the Distribution of Patients according to Exercise done by the patient were given, where it was observed that 74% of the subject didn't do any physical work or Exercise, 16% of the patient subject were doing Exercise occasionally and only 10% of subjects were doing Exercise Regularly.





Sleep	No of patient	Percentage
Sound	16	32%
Interrupted	15	30%
Disturbed	08	16%

Delayed	11	22%

**Table 14** shows the Distribution of patients according to sleep pattern, where it was observed that 30% of patients had disturbed sleep patterns, 22% had delayed sleep patterns, and 16% had disturbed sleep.

#### Discussion -

A condition like Amlapitta is probably correlated with Acid Peptic Disorders, which comprise gastro-esophageal reflux Disease, Gastritis, and Functional Dyspepsia. As it is referenced in the Ayurvedic Samhita Avipakam (Undigestion, Thikta/ amlaudgara (Bealching), Aruchi (Anorexia), Hriddaham (Palpitation), Gauravam (Heaviness), Kantadaham (Burning throat), Klamam (Tiredness), Siroruja (Headache), and Trishna (Thrust) are defining characteristics of Amlapitta whereas in Gastro-Oesophageal Reflux Disease, Gastritis, Functional Dyspepsia characterized by burning in the chest, belching, indigestion, nausea, or vomiting, loss of appetite.

In Ayurveda, Agnimandya (indigestion) is believed to be the root cause of all diseases. The primary reason behind Agnimandya is faulty dietary habits such as Adhyashana (eating after meal), Vishamashana (Diet on irregular time and quantity), and wrong behavioral patterns such as Vegadharana (suppression of urges) leads to vitiation of Doshas (fundamental bodily bio-elements) either independently or synonymously. Due to the present lifestyle and unawareness of one's Prakriti, digestive disorders are prevalent in all age groups and are also highly ignored issues.

We observe that the patients who are more sustainable to Amlapitta are 20-27 years old. According to the medical history, the patient had inconsistent eating habits and overused Kshir, Drava, Atimamsa, Guru, and Viruddha Ahara. Due to Viruddha anna pana, Atisevan, and dushta, Anna pana causes aggravation of pitta, and it accumulates in koshta, which causes the Agni mandya Pitta to develop vidagdhata / sourness. This - aggravated pitta gets vidagdha, i.e., attains more sourness in persons influenced by the above-mentioned etiological factors and causes a disease called amlapitta.

Data collected from 50 patients who finished the trial were considered for pertinent observations, and the findings were analyzed. The pitta prakriti type has the highest prevalence of Amlapitta (17;

34%), followed by the pitta kaphaja prakriti type (14;28%) and vata pittaja prakriti type (10;20%). The gender breakdown revealed that 16 males (32%) and 34 females (68%) were in the majority.

In the present study, among 50 subjects diagnosed with Amlapitta, 35(70%) subjects were having Avipakam and Siroruja symptoms, 33(66%) subjects are having kalama sign, 29(58%) subject is having Thikta / amlaudgar symptom, 27(54%) of subject is having Aruchi symptoms, 22(44%) subject is having kantadaham symptoms, 17(34%) of subject were having Gauravam, 16(32%) subjects were having Thrishna symptoms, 15(30%) of subjects were having Hriddaham. Distribution of Patients according to Diet signifies that 13(26%) subjects were on a Vegetarian Diet, 32(64%) subjects were on a Mixed Diet, and 5 (10%) were on a vegetarian Diet.

Looking for Aharaj hetu, 64% subject had Viruddha Anna pana as hetu, 60% of subjects had Ashyashana as hetu, 56% of the subject had Dushta Anna pana and Atisevan as hetu,54% were having Atidurta and 52% were having Ajalpa, 50% were having Amla Anna pana and shitam as Aharaj hetu. Whereas it was observed that 84% of subjects had Ratrijagran as their Viharaj hetu, 64% of subjects had Vishamasahan as their Viharaj hetu, and 42% of the subjects had Ativyavya as their Viharaj hetu. The Incidence of Amlapitta is Krura Kostha, found in 8 Patients. Mrudu Kostha was found in 14 Patients, and Madhyam Kostha in 28 Patients. Out of 50 Patients, Visham Agni is found in 15 Patients, Tikshna Agni is found in 21 Patients, and Manda Agni is found in 14 Patients. Also, 31 patients have an Addiction to Tea, which is 62%, which aggravates pitta and causes Amlapitta, whereas 12 patients, 24%, are addicted to Alcohol, which also causes Amlapitta. It was observed that 30% of patients had disturbed sleep patterns that caused aggravation of pitta, 22% had a delayed sleep pattern, and 16% had disturbed sleep.

#### **Conclusion**

When Prakrutha Pitta receives Vidagdata from the Aharaja, Viharaja, and Manasika Nidana, Amlapitta takes place. A greatest number of patients have been found to present with Amlapitta Samanya Lakshana and Prathyatma Amlapitta Lakshana. The age range of 20–27 years old had the greatest occurrence. Amlapitta is quite common and is caused by the consumption of Ahitakara Ahara, Vihara, and Manasika Bhavas. Aharaja Nidana included things like eating non-vegetarian cuisine, drinking alcohol, chewing tobacco, fasting, Katu, and Amla Rasa Sevana. Viharaja Nidana included things like the patient's habit of smoking, chewing tobacco, and drinking tea. Chronic

Amlapitta stages can cause various ailments like Jwara, Atisara, Shotha, Pandhutha, etc.; these disorders are also influenced by the vitiation of Doshas. Based on the aforementioned research, we were able to determine the primary cause of Amlapitta and take proactive measures to address it, such as avoiding the Ahitakara Ahara and Vihara Sevana. We were able to find the Pathya from the current study, such as Taptasheetajala Sevana, which has demonstrated a noteworthy impact on managing and preventing Amlapitta.

#### **References**:

1. Trikamji, Y., 2008. Charaka Samhita revised by Charaka and Dridhabala with Ayurved Dipika commentary of Chakrapanidatta.

2. Bhavamisra, S., 2010. Bhavaprakasa: edited by Sri Brahmasankara Mishra and Sri RupalalajiVaisya. Varanasi: Choukambha Sanskrit Bhawan, 1, p.108.

3. Varma, S., Sawarkar, P., Sawarkar, G., Parwe, S., Rajwade, S., Dodiya, M. and Tople, D., 2022. Management of AdhogAmlapitta with Ayurveda: A Case study. International Journal of Health Sciences, (II), pp.1050-1061.

4. Maricha, K., 2008. Samhita of VridhaJivaka: edited by Prof PV Tewari. Khilasthana 16th Chapter Amlapitta chikitsadhyaaya published by Chaukhambha Visvabharati, Varanasi reprint, 630.

5. Hussain, S., 2019. A Study of Vitamin B12 Deficiency in Type 2 Diabetes Mellitus Patient on Long Term Metformin Therapy (> 6months) Coming to Tertiary Care Hospital Mysuru (Doctoral dissertation, Rajiv Gandhi University of Health Sciences (India)).

6. Wiener, C., Fauci, A., Braunwald, E., Kasper, D., Hauser, S., Longo, D., Jameson, J., Loscalzo, J. and Brown, C., 2012. Harrisons principles of internal medicine self-assessment and board review 18th Edition.

7. Hyperacidity. [Last accessed on 2011 Aug 19]. Available from: http://www.hyperacidity-acid-refluxesophagitis-peptic-ulcers; and http://www.en.wikipedia.org/wiki/Hyperacidity .

8. Kadam, S.K., Parwe, S., Patil, M., Nisargandha, M. and Belsare, A., 2020. Evaluation and Comparison of Madanaphala, Jeemutaka and Ikshwaku Vamana in Tamakshwasa-A Study Protocol. Int J Cur Res Revl Vol, 12(22), p.112.

9.Fauci Anthony, Kasper Dennis, Hauser Stephen, Longo Dan, Loscalzo Joseph, Jameson J. Larry.17th ed. II. United States of America: McGraw Hill Medical; 2008. Harrison's Principles of Internal Medicines, Disorders of the Gastrointestinal Symptoms; p. 1851. 1852.

10. Everhart, J.E., 1994. Digestive Diseases in the United States: Epidemiology and Impact, NIH Publication 94-1447. Bethesda, MD: NIH, pp.357-408.

11. Yadav, B., Mahajon, B., Dubey, N., Panda, A.K., Rao, B.C., Singhal, R. and Srikanth, N., 2019. Traditional Ayurveda medicines for the management of amlapitta (functional dyspepsia): A study protocol for a prospective, single-arm, open-label clinical trial. J. Res. Ayurvedic Sci, 3, pp.74-83.