wjpmr, 2020,6(1), 128-133

SJIF Impact Factor: 5.922

WORLD JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.wjpmr.com

Research Article

ISSN 2455-3301

WJPMR

NIDANATMAKA STUDY ON *MEDA SANCHAYA* IN LIVER W.S.R TO NON ALCOHOLIC FATTY LIVER DISEASE (NAFLD)

Dr. Dharmendra Kumar*[1] and Dr. Priyanka Singh[2]

[1]Lecturer, Department of *Rog Nidan*, R.B. *Ayurvedic* Medical College, Agra.
[2]Clinical Registrar, P.G. Department of *Kayachikitsa*, N.I.A. Jaipur.

***Corresponding Author: Dr. Dharmendra Kumar**

Lecturer, Department of *Rog Nidan*, R.B. *Ayurvedic* Medical College, Agra.

Article Received on 26/10/2019 **Article Revised on 16/11/2019** **Article Accepted on 06/12/2019**

ABSTRACT

The prevalence of fatty liver disease in India is found to be as high as 24%, which is similar to that reported in some of the Western countries, where it correlates with the prevalence of obesity. Non Alcoholic Fatty Liver Disease (NAFLD) can occur at all ages including childhood, though the highest prevalence is described in those between 35– 45 years of age. With some limitations, both population and hospital-based studies from the West report that around 10–24% of general population, and 57–74% of obese individual may have Non Alcoholic Fatty Liver Disease (NAFLD). The corresponding rates for Non Alcoholic Steato Hepatitis (NASH) are 3–4% and 15–20%, respectively. Survey research is an important form of scientific inquiry that merits rigorous design and analysis. The aim of survey is to gather reliable and unbiased data from a representative sample of respondents. In order to acquire data about people, objects, and events proper data collection tools need to be designed which can measure things of scientific interest. This study was conducted in an individual through survey of *Medo Roga* patients. The population of 200 subjects of age group more than18yrs.of both sexes was included in the study. Survey was carried out through specially prepared questionnaire which includes both *Ayurvedic* and Modern science inputs such as anthropometric measurements and Etiological (*Nidanatmaka)* criteria of *Ayurveda.* The results of the study are validating the ancient knowledge of *Ayurveda* in current scenario.

KEYWORDS: NAFLD, *Ayurveda*, NASH, *Medo Roga, Nidanatmaka*.

INTRODUCTION

The prevalence of fatty liver disease in India is found to be as high as 24%, which is similar to that reported in some of the Western countries, where it correlates with the prevalence of obesity.[1] NAFLD can occur at all ages including childhood, though the highest prevalence is described in those between 35– 45 years of age. With some limitations, both population and hospital-based studies from the West report that around 10–24% of general population, and 57–74% of obese individuals may have NAFLD. The corresponding rates for NASH are 3–4% and 15–20%, respectively.[2]

According to *Ayurveda*; *Meda* is an important *Dhatu* of body, which in its natural state, maintains *Snigdhata* and provides *Bala* to body. But when the quantity of *Meda* increases from normal, it causes various structural and functional abnormalities inside body. Excessive *Meda* deposits in the various parts and organs of body including *Yakrita*, which impairs the proper function of these organs. The excessive fat deposit inside liver causes fatty liver. Fatty Liver has become one of the major global health concerns worldwide. It is the most common cause of liver-related morbidity and mortality in under-developed and developing countries. Because of its potential to cause life threatening complications it has been kept on the top of agenda in public health administrations. Here we have considered about Fatty Liver Disease because of its prevalence, tendency to cause cirrhosis and hepatocellular carcinoma. The aim of the present survey is to gather reliable and unbiased data from a representative sample of respondents.

MATERIAL AND METHODS

The population of 200 subjects were included in the *Nidanatmaka* study as per inclusion criteria. They were selected from the pool of the patients reporting to National Institute of *Ayurveda* (OPD/ IPD/ Lab.), SSBH Kishanpole, Jaipur. Survey was based on a specially prepared questionnaire which includes both *Ayurvedic* and modern science inputs such as anthropometric measurements and *Nidanatmaka* criteria of *Ayurveda.*

Inclusion criteria

Patients were having over weight (Through BMI) of more than 18 years; presenting Sign and symptom of NAFLD; Clinically diagnosed Hepatomegaly (Non

Alcoholic fatty liver); Abnormal liver function test; Dyslipidemias and USG/CT Scan evidence of fatty liver.

Exclusion criteria

Patients below age group 18 years; were having Alcohol addict; Pregnant Woman; Patients suffering from major illness; biliary obstruction and Uncooperative Patients.

OBSERVATIONS AND RESULTS

Table 01: Demographic Data of patients.

Parameter	No. of Subjects	Percentage
Age group - 34-42 years	98	49.0
Female	152	76
Hindu	140	70.0
Married	173	86.5
Jāṁgala Desha	188	94.0
Education -High school	72	36.0
Education -Post-Graduate	72	36.0
Socio Economical Status - Lower Middle	96	48.0
Occupation – Housewife	78	39.0
Habitat – Urban	138	69.0
Mixed diet	117	58.5
Mandagni	124	62.0
Family History –Absent	148	74

Table 02: Ātura Bala Pramāṇa Parīkṣā wise distribution of patients.

Parameters	No. of Subjects	Percentage
Pitta- Kapha Prakriti	85	42.5
Raj Mansa Prakriti	117	58.5
Madhyama Sara	86	43.0
Madhyama Samhanana	101	50.5
Vishama Pramana	125	62.5
Avara Satva	96	48.0
Pravara Satmya	84	42.0
Pravara Abhyavarana Shakti	116	58.0
PravaraJarana Shakti	103	51.5
Avara Vyayama Shakti	99	49.5
Rasavaha,Mansavaha,Medovaha Srotodushti	72	36.0
Madhyama Koshtha	120	60.0
Ati Nidra	95	47.5
Adhyashana	92	46.0
Samshana	88	44.0

Table 03: *Nidana* wise distribution of patients.

Parameters	No. of Subjects	Percentage
Aaharaja Nidana		
Madhuradi sevan	165	82.5
Adhyashana	165	82.5
Junk food	162	81.0
Tea/coffee/smoking	172	86.0
Viharaja Nidana		
Avyayama	172	86.0
Physical activity after meal	162	81.0
Mansika Nidana		
Achinta	172	86.0
Harsha	168	84.0

Table 04: Signs and symptoms wise distribution of patients.

Signs and symptoms	No. of Subjects	Percentage
Chala sphik, Udara, Stana (Pendulous buttocks, belly & breasts)	116	58.0
Javoparodha (sluggishness in movements)	127	63.5
Swedabadha (Excessive Sweat)	148	74.0
Krichhavyavayata (Difficulty in Intercourse)	109	54.5
Kshudatimatrama (Excessive Appetite)	102	51.0
Daurbalyam (Weakness)	156	78.0
Pipasatiyogam (Excessive Thirst)	121	60.5
Daurgandhyam (Foul Smell)	135	67.5
Flatulence	158	79.0
Constipation	145	72.5
Hepatomegaly	73	36.5

DISCUSSION

The study was conducted in total 200 individual through survey of *Medo Roga* patients above 18 years age, Patients belonging to either gender.

Discussion on demographic data: (Table 01)

Age & Sex

Maximum numbers of cases 49% were found in age group of 34-42 years, the next common age group was 25-33 years (24%). Distribution of gender in 200 patients revealed that 76% of cases were female followed by 24% were male.

The association of *Medo Roga* found higher in such age group due to decrease in physical activity with age in both men and women and continuing the younger age dietary habits. On the other hand a decrease in metabolism with age reported particularly in women after menopause is another explanation.[3] So the weight is increasing in 34-42 years age group.

Women go through three physiological transitions – menarche, pregnancy and lactation, menopause – and at these thresholds they tend to put on weight. Another factor observed was; at the age of puberty and after having required issues approximately up to the age of 30 years females start using contraceptive pills, which result in increase in weight due to hormonal imbalance. It is the reason as *Medoroga* found more common in females during 34-42 years of age. A higher consciousness among the women regarding the physical appearance in *Medo rog* may also have contributed to this data showing a higher proportion of females seeking an anti-Fatty liver medication. Indeed, globally a higher prevalence of Obesity and fatty liver has been reported among women than the men. [4]

Religion

It is evident from survey that maximum 70% patients were Hindu as the study was conducted in Hindu dominant area.

Marital status

Maximum 86.5% cases were married which is a reflection of strongly advocated marriage institution in India, so that, by the time a person is middle aged he/she is usually married. Also due to increase in responsibilities after marriage the stress level also increases which can be a contributing factor to *Medo roga* too.

Deśha

Maximum 94% patients were found to belong *Jāngala Desha* may be due to site of study Jaipur city comes under definition of *Jāṅgala Deśa* as per Ayurvedic principles.

Education

Maximum 36% patients were educated up to high school while another 36% were post-graduate. The positive effect of education is likely to be determined like most other health variables, Obesity and fatty liver. Few studies showed more level of schooling is associated with a lower incidence of Obesity.[5] It is estimated that a one-year increase in schooling leads to a reduction in the Body Mass Index (BMI) of about 1-4%, and a decrease in the probability of Obesity of 2-4 percentage points. These effects are stronger for females by following three factors: (a) greater access to health-related information and improved ability to handle such information; (b) clearer perception of the risks associated with lifestyle choices; and (c) improved self-control and consistency of preferences over time.[6]

Socio-economic status

The study revealed maximum numbers of patients i.e. 48% belonged to lower middle class, followed by 45% to higher income. Low income group contributed to a very low extent. Strong evidences in relationship between SES and Obesity has also been established in the developed Western societies.[7] This relationship is attributable to a higher level of health consciousness among the high socioeconomic groups in developed countries assuring their involvement in leisure time physical activity and judicious selection of food articles. But it is least common in lower class may be due to heavy physical work and poor nourishment.

Occupation
Maximum 39% were housewife, 21.5% were serviceman while 19.5% were business man. The housewives reported their involvement due to limited physical exertion was evident as an adaptation to modern lifestyle and technologies. This fact itself explains the high prevalence of this disease among the study population. This is in agreement with a previous work highlighting the impact of sedentary life as a part of involvement in domestic activities alone in the housewives on Obesity.[8] A correspondingly high prevalence of Obesity with fatty liver was observed in subjects involved in government job, which are relative, comfortable and can be related to deskwork. This is in consistence with previous researches highlighting the impact of reduced physical activity at workplace on the risk of developing Obesity.[9] Researchers have established that occupational sitting time was independently associated with overweight and Obesity in men suggesting that the workplace may play an important role in the growing problem of overweight and Obesity.[10]

Habitat
69% patients were from urban habitat as these people lead luxurious life and do less physical labour in comparison to rural area.

Diet
58.5% were patients had mixed dietary habits which contains high calories as well as fat and proteins. Same is proven in latest German research which showed children who had nutritional deficiency in the womb after conception have had a specific tendency to accumulate more fat as reserves.

Agni
62% patients were having *Mandāgni,* 23.5% patients were having *Viṣamāgni* while 14% having *Samāgni*. As we see the *Samprapti* of *Medo roga*, due to *Meda-Dhatwagni Mandya* there is excessive accumulation of *Meda* that leads to obstruction of *Medovaha Strotasa*. Due to this, there is *Vimargagamana* of *Vata Dosha*. The *Vimargaga Vayu* in *Koshta* ultimately increases the *Jatharagni* leading to an increase in appetite. This is the vicious cycle which goes on and on. But because of the obstruction created by *Medovaha Strotasa*, all other *Dhatus* remains malnourished and only *Meda Dhatu* (fat) increases. The fat deposit inside liver causes fatty liver, which in lack of treatment can cause serious conditions.

Dietetic habit
Maximum patients i.e. 46% were having *Adhyashana*. Adhyashana type of dietetic habit produces *Ama* in the body and makes *Medodhatvagnimandya* leads to *Medo Roga*. Actually this habit was observed in the patients before the manifestation of disease (As per history given) which incorporated meals followed by episodes of binge eating. As *Acharya Sushruta* stated undigested *Ahara Rasa* produced by *Adhyasana* converts into *Ama* and further cause's excessive production of *Medodhatu* in the body.[11] This is before manifestation but after manifestation alleviated *Vata Dosa* from *Koshtha* becomes the cause for increased appetite and leads to *Adhyasana* which is vicious cycle.

Family History
26% patients had positive family history of Obesity. Modern text also accepts the role of genetic factors influencing energy expenditure by affecting BMR, thermal effect of food etc. Observation from the present study confirms these statements from modern science as well as from *Ayurveda*. Studies that have focused on inheritance patterns rather than on specific genes have found that 80% of the offspring of two obese parents were also obese, in contrast to less than 10% of the offspring of two parents who were of normal weight.[12]

Discussion on *Dashavidha Parikshya Bhava*: (Table 02)
Sharira Prakriti
42.5% patients were *Pitta-Kapha Prakriti* while 35% were *Vata-Kapha Prakriti*. This indicates that *Kapha* is the predominant factor for *Medo Rog* and it is clearly mentioned as *Nanatmaja Vyadhi* of *Kapha Dosha* in ancient Ayurvedic texts.[13]

Manasika Prakriti
58.5% patients had *Rajasik Prakriti* so persons of similar *Prakriti* are more inclined towards pleasures of the palate and are habituated to various indulgences in food, alcohol, smoking etc.[14]

Sara, Samhanana* and *Pramana
43.0% patients were having *Madhyama Sara*, 50.5% patients were found having *Madhyama Samhanana* and 62.5% patients were of *Vishama Pramana.* In *Medo Roga* and allied disorders of lipid metabolism, there is only a quantitative increase in the *Medo Dhatu* which alters other *Dhatu*s. Therefore; *Sara* and *Samhanana* were not found *Pravara* in most of the patients. Also *Madhyama Samhanana* is associated with deterioration from the definition of *Prashasta Purusha*, causing person more vulnerable to the Disease. This is the characteristic feature of *Medoroga.*

Satva
Maximum patients i.e. 48.0% were having *Avara Satva* indicates moderate mental strength of the subjects and also makes person uncontrolled towards lifestyle & diet-style.

Abhyavaharana Shakti* and *Jarana Shakti
Majority of the patients i.e. 58.0% patients were of *Pravara Abhyavaharana Shakti* while 42.0% patients were of *Madhyama Abhyavaharana Shakti.* 51.5% patients were of *Pravara Jarana Shakti*, 45.5% patients were of *Madhyama Jarana Shakti*. *Medo Roga* patients are characterized by an augmented *Jatharagni* which leads to more intake of food. Also *Acharya Charaka* has stated that in *Medo Roga Sandhukshana* of *Agni* due to

the *Avarana* of *Vayu* leads to excessive hunger causing a desire to eat more frequently.[15] It is also characterized by faster digestion of food and again continues the cycle of enhanced hunger.

Vyayama Shakti

Vyayama Shakti of 49.5% patients was found *Avara*. Lack of insufficient physical activities reduce energy expenditure compared to energy intake, tends towards obesity. It represents that *Vyayama Shakti* is reduced by *Medoroga*, as said by *Acharya Charaka*, this reduced *Vyayama Shakti* further aggravates the *Medoroga*.

Srotodusti

36.0% patients in this study were suffering from *Rasa-Mamsa-Medavaha Srotodusti*, Intake of factors causing *Sroto Dushti* of a particular *Dhatu* results in *Khavaigunya* (environment for pathogenesis) of that *Dhatu* facilitating the pathogenesis. Thus *Medovaha, Rasavaha* and *Mamsavaha Sroto Dushti Hetus* which were found in the patients lead to the *Khavaigunya* in these *Dhatus*. Also *Annavaha Srotas Dushti* results in *Ama* formation subsequently leading to the formation of *Ama Medo Dhatu*.

Kostha

In this study 60.0% patients were of *Madhyama Koshth*a might be *Kapha* predominance *Prakriti*, which increases prevalence of *Medo Roga.*

Nidra

Majority of the patients i.e. 47.5% were having excessive sleep. It shows that excessive sleep plays an important role in developing *Medo Roga*. *Charaka* has clearly mentioned the role of *Nidra* in *Sthaulya*.

Discussion on *Nidana*: (Table 03)

86% were having Tea/coffee as *Nidana* followed by *Madhuradi Sevana* and *Adhyashana sevana* 82.5% in each. 81.0% patients were involved in taking junk food. *Madhura Rasa* is *Snigdha*, *Sheeta* and *Guru* in nature and is known to increase *Kapha Dosha* and all the *Dhatu* including *Meda.* It gives nourishment & strength to the body. On excessive use due to a direct result of vitiation of *Kapha Dosha* it is known to cause *Sthaulya, Alasya, Gaurava* which were seen to be the chief complaints of maximum patients. As *Kapha* and *Meda* are both *Guru* and *Snigdha* in nature due to similarity of attributes they result in a direct increase in *Kapha Dosha* and *Medo Dhatu*.

Amongst *Viharaja Hetu*, 86% patients were involved in *Avyayama sevana* followed by *Aasya sukham* and *Divaswapna* in 75.5%; each leads to accumulation of fat in the body. Amongst *Manasa Hetu*, 86% and 84% patients were involved with *Achinta* and *Harsha* respectively. *Nityaharsha* & *Achintana* leads to mental satisfaction & *Sthairya*, which may to increase *Manda, Stimita, Sandra & Guru Guna* of *Kapha*. While *Atichintana* & *chintita* (stress & anxiety) helps to diminish the function of *Rasavaha Srotas* and also decreases normal digestive power which ultimately decreases *Jatharagni* & *Medodhatvagni*, which causes fat deposition in body and various organs like liver etc.

Discussion on signs and symptoms: (Table 04)

In the present study, 58% patients were having *Chala sphik, Udara, Stana*, 63.5% were having *Javoparodha*, 74% were having *Swedabadha*, 54.5% were having *Krichhavyavayata*, 51% were having *Kshudatimatrama*, 78% were having *Daurbalyam*. All are the symptoms of *Medoroga* were found in prominent percentage in the study validating ancient knowledge of Ayurveda in current scenario as they were clearly mentioned in classical texts very long time ago.

CONCLUSION

The following conclusion can be drawn from the *Nidānātmaka* survey study - *Meda Sanchaya* in liver is caused by *Jatharagni Mandata* and decrease the *Medodhatwagni* which leads to *Medavriddhi*. So that Excessive *Meda* deposits in the various parts and organs of body *Yakrita*, which finally terminates in Fatty Liver Disorder. People having sedentary life style are more prone to Fatty Liver and related life style disorders. The study showed reliability and validity of ancient Ayurvdic text in current scenario as *Charaka* included the *Medasvi* person under the category of eight undesirable personalities (*Ashtauninditiya)* due to symptoms like *Ayushohrasa*, complicated pathology and long term management. Also proves the concept of *Acharya Sushruta* as *Rasa Dhatu* is major pathological factor involved in both *Medo Roga* and emaciation (*Sthaulya* and *Karshya).*

As *Acharya Charaka's* explanation of *Medo Roga* matches with phenotype of obesity. *W.H.R.* can be taken as parameters to assess the *Sthaulya*, as *W.H.R.* helps to check the abdominal fat *(Chala udara)* and gluteal fat *(Chala sphik)* & Skin fold thickness helps to measure regional fat *(Chala stana).* Classification done on *Nidana* like *Aharaja, Viharaja, Manasika* holds good for *Meda Sanchaya* in liver. Because each of them have its own role to play but above all *Samanyaja* stands first. If that is not in favour of *Medo Roga* then disease cannot manifest. Hence it is the *Vikaravighatakara Bhava*.

ACKNOWLEDGEMENT

The author is showing his gratitude towards Director and other faculties of National Institute of Ayurveda.

Conflict of Interest – None.

REFERENCES

1. AGA technical review on nonalcoholic fatty liver disease. Gastroenterology, 2002; 123: 1705–25.
2. Neuschwander-Tetri BA, Caldwell SH. Nonalcoholic steatohepatitis: summary of an

AASLD single topic conference. Hepatology, 2003; 37: 1202–19.
3. World Health Organizations (WHO): Obesity. Preventing and Managing the Global Epidemic. Report of WHO consultation on Obesity. WHO Geneva, 1997 June; 3-5. [http://whqlibdoc.who.int/1998/WHO NUT NCD 98.1 (p1-158).pdf]
4. Jamwal DS.Prevalence Study of Overweight/ Obesity and Hypertension Among Rural Adults. January-March 2009; 11(1). *www.jkscience.org*.
5. Baum and Ruhm, 2007; Rashad et al., 2006.
6. Franco Sassi, Marion Devaux, Jody Church, et al. Education and Obesity in Four OECD Countries, 15 June 2009: www.oecd-library.org.
7. Sobal J, Stunkard AJ. Socioeconomic status and obesity: a review of the literature. *Psychol Bull*, 1989; 105: 260–75.
8. Frank B Hu et al. Television Watching and Other Sedentary Behaviors in Relation to Risk of Obesity and Type 2 Diabetes Mellitus in Women. *JAMA*, 2003 April 9; 289(14).
9. Timothy S. Church, Diana M. Thomas, Catrine Tudor-Locke, et al. Trends over 5 Decades in U.S. Occupation-Related Physical Activity and Their Associations with Obesity. *PLoS ONE*, 2011 May 25; 6(5): e19657.
10. Mummery WK, Schofield GM, Steele R, et al. Occupational sitting time and overweight and obesity in Australian workers. *Am J Prev Med*, 2005 Aug; 29(2): 91-7.
11. *Sushrut, Sushrut Samhita*, Twelvth edition, edited by Ambikadutta Shastri, Chaukhambha Publication, Varanasi, India, *Sutra sthan*, 2001; *15/37.*
12. Intergenerational Transmission of overweight and Obesity from Parents to there Adolescent Offspring-The HUNT Study, Naess M, et al. PLoS One, 2016.
13. *Agnivesha, Charak samhita*, edited by pandit kaashinath pandey and gorakhnaath chaturvedi, Chaukhambha Publication, Varanasi, India, *Sutra sthan, 20/17*.
14. *Sushrut, Sushrut Samhita*, Twelvth edition, edited by Ambikadutta Shastri, Chaukhambha Publication, Varanasi, India, *Sharir sthan*, 2001; *4/92*.
15. *Agnivesha, Charak samhita*, edited by pandit kaashinath pandey and gorakhnaath chaturvedi, Chaukhambha Publication, Varanasi, India, *Sutra sthan, 21/4*.