IJBPAS, November, 2024, 13(11): 5958-5968

ISSN: 2277–4998

International Journal of Biology, Pharmacy and Allied Sciences (IJBPAS)

'A Bridge Between Laboratory and Reader'

www.ijbpas.com

AN OBSERVATIONAL STUDY ON NIDANAPANCHAKA OF HYPERLIPIDAEMIA

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Received 20th March 2024; Revised 24th April 2024; Accepted 16th Aug. 2024; Available online 1st Nov. 2024

https://doi.org/10.31032/IJBPAS/2024/13.11.9163

ABSTRACT

Ayurveda the holistic system of health care is having different diagnostic approach from the diagnostic methods in western medicine. In ayurveda, diseases are diagnosed by considering the etiological factors, factors involved in the pathogenesis, signs and symptoms, aggravating and relieving factors. These diagnostic principles are collectively known as nidanapanchaka. The knowledge of nidanapanchaka has crucial importance in diagnosis and treatment of diseases. Most of the common health problems emerging in the present era are not described in ayurveda. But we can diagnose and treat newly appearing diseases on the basis of ayurvedic diagnostic principles which are described as nidanapanchakas. Hyperlipidaemia is a common condition nowadays due to present dietary habits and lifestyle changes. Hyperlipidaemia has a pivotal role in the manifestation of atherosclerosis. Major consequences of atherosclerosis are myocardial infarction, cerebral infarction, aortic aneurysm and peripheral vascular diseases .The condition of hyperlipidaemia is not mentioned in ayurvedic classics. According to the principles of ayurveda, the diseases are manifested due to the vitiation of doshas, dushyas, agni, ama and srotas. Vitiated doshadushyas in hyperlipidaemia can be analysed with the diagnostic tools of nidanapanchakas . Thus hyperlipidaemia which is an

important life style disorder nowadays, can be diagnosed and treated by the knowledge of nidanapanchakas.

Keywords: Ayurveda, Nidanapanchaka, Hyperlipidaemia, Pathogenesis, Diagnostic tools, Dosha, Dushya

INTRODUCTION

Ayurveda, the unique comprehensive healing system focuses on maintenance of health in healthy people and to cure the diseases of sick. Diagnostic methods of ayurveda include the assessment of different subjective and objective parameters related to the disease as well as patient. In ayurveda, diagnosis of diseases is made not only on the basis of lab investigations or signs and symptoms. Ayurveda adopts an individualistic approach by considering the all the factors involved in the pathogenesis of disease. Therefore the diseases are diagnosed and treated on the basis of detailed examination of patient and disease. Patient is examined by different methods such as dasavidhapariksha(tenfold examination), ashtavidhapareeksha (eightfold examination), thrividhapareeksha (threefold examination) , dvividhapareeksha (twofold examination) etc. Diseases are diagnosed by the analysis of nidanapanchaka. It includes the analysis of nidana, purvarupa, rupa, upasaya and samprapthi. According to the principles of ayurveda, diseases are innumerable in number due to multiplicity and variability in causative factors and by the permutation and combination of doshadushyas. Naming of diseases are not a necessity in ayurveda. Knowledge about the causative factors involved in a disease and pathogenesis will make the ability in physicians to treat the disease successfully even if it is not mentioned in ayurveda. The condition of hyperlipidaemia is not mentioned in ayurveda. But the knowledge of nidanapanchaka help us in analysing all the factors promoting the development of hyperlipidaemia related to genetic, food, lifestyle etc. The present study tries to analyse the condition of hyperlipidaemia in the light of ayurvedic diagnostic principles of nidanapanchaka.

AIM

To analyse the nidanapanchakas involved in hyperlipdaemia

MATERIALS AND METHODS

Relevant literatures related to modern science and ayurveda samhithas were reviewed and a survey was conducted to collect and corroborate the lifestyle factors related to hyperlipidaemia and it was corroborated with ayurvedic view.

Hyperlipidaemia---- A brief review

Hyperlipdaemia is a general term for elevated concentrations of any or all of the

lipids in plasma such as cholesterol, triglycerides and lipoproteins **[1]**. The causes of hyperlipidaemia are multi factorial. Hyperlipdaemia is either due to primary abnormality in lipid metabolism or due to secondary manifestation of some other conditions **[2]**. Primary hyperlipidaemia is due to single or multiple gene mutations that result either in the overproduction or underproduction or defective clearance of triglycerides and LDL cholesterol .Diet rich in carbohydrates and saturated fats, excessive intake of alcohol, obesity, lack of exercise, smoking and mental stress are the main lifestyle factors of Hyperlipidaemia. Usage of diet rich in carbohydrates, saturated fats, egg yolk and dairy products will increase the level of serum triglycerides and LDL cholesterol. Lipids are synthesized endogenously in human body from carbohydrates. Reuse of cooking oil and fried items also enhance the development of hyperlipdaemia as it contains more trans fatty acids. Excessive intake of alcohol raises the triglyceride level in the blood. Obesity may also increase the lipid level because excess fat and carbohydrates are converted into fatty acids. Lack of exercise leads to possibility of developing high cholesterol and cardiovascular diseases. Mental stress increases fatty acid level in the blood by stimulating the hypothalamus by producing growth hormones of anterior pituitary. It also cause the increased catabolism of triglycerides and thereby increase in the levels of free fatty acids. Stress itself is a major cause of heart diseases **[3]**. There are no specific symptoms of hyperlipidaemia. Undetected or untreated hyperlipidaemia leads to coronary artery diseases, cerebrovascular accidents, type II diabetes, high blood pressure and even death **[4]**. So regular blood screening should be done to diagnose hyperlipidaemia.

Concept of Nidanapanchaka

Nidanapanchaka include the five aspects of diagnosis used for evaluating a disease. According to ayurveda, the effect will not occur without cause. Knowledge of etiology is an important component in thrisutra of ayurveda **[5]**. Nidana is the factor which produce a disease by the vitiation of doshas either immediately or after a certain period. If the causative factors are not considered in a disease and indulgence in such causative factors will lead to adverse progression in disease leading to more serious complications. The word nidana has several synonyms nimitta, hetu, ayatana, pratyaya, uthana, karana **[6]**. All types of causes such as acute and chronic, dominant and non-dominant, physical and psychological, direct and supportive, external and internal comes under nidana.

Purvarupas are the mild, indistinct symptoms appearing in a disease before the manifestation of main disease **[7]**.

Purvarupas are manifested in the stage of sthanasamsraya. Purvarupas are classified into samanyapurvarupa and viseshapurvarupa. Samanyapurvarupa is the general premonitory symptoms in a disease. Viseshapurvarupas are manifested according to the vitiation of specific dosha. Knowledge of purvarupas help in the diagnosis, prognosis and treatment of diseases. The evident signs and symptoms appearing in a disease is called rupa. Lingajnana is also one among the trisutras. Stages of the diseases can be identified from rupa. Rupa specifies the doshas involved in the pathology of a disease and this will be helpful in making differential diagnosis and prognosis. Samsthana, vyanjana, linga,lakshana, chihna and akrithi are the synonyms of rupa **[8]**. Rupa is classified into samanyarupa and visishtarupa. Samanyarupa is the general symptoms appearing in a disease. Visishtarupa is the specific symptoms appearing in a disease.

Upasaya is the trial therapy. Administration of medicine or diet or regimen that bring relief in the symptoms is called upasaya.Upasaya also known as sathmya **[9]**. Upasaya is of eighteen types viz.hetuviparita, vyadhiviparita, hetuvyadhiviparita, hetuviparitarthakari, vyadhiviparitarthakari and hetuvyadhi viparitarthakari related to oushadha, anna and vihara. Anupasaya is the factor which aggravate the condition of disease. When there is difficulty in the diagnosis due to hidden factors or due to simulating nature of disease, then upasaya therapy will be helpful in making accurate diagnosis. According to the result of upasaya and anupasaya therapy, changes can be made in the line of treatment. Samprapthi include all the processes which start from the contact of nidanas till the manifestation of diseases **[10]**. Factors involved in the samprapthi are the doshas,dushyas, agni,ama and srotases. Samprapthi has been subdivided into five types viz. sankhya, vikalpa, pradhanya, bala and kala. Vikalpa samprapthi has additionally described by charaka. The knowledge of samprapthi help the physicians greatly in planning the line of treatment.

SURVEY ANALYSIS & RESULT

In order to collect and corroborate the etiological factors of hyperlipidaemia in the light of doshas, dhathus, and srotases etc. a survey was conducted among the patients OP & IP patients. Sample of 40 people of both sex with hyperlipidaemia and 80 people with non hyperlipidaemia having age limit between 30 & 65 were selected. Consent for conducting the study got from patients and ethical clearance also obtained .Patients who were taking allopathic medicines and patients with genetic disorder were excluded. Lipid profile test was used for assessing the patients. Study design is analytical cross sectional and convenient

sampling was used as sampling technique. Data was collected by using questionnaire. Questions related to demographic details, food pattern, usage of food and beverage items, mental stress, usage of alcohol were included.

The details obtained from survey were statistically analyzed. The result thus obtained had shown that acquired hyperlipidaemia is more common in our community than primary hyperlipidaemia. Average age group at which hyperlipidaemia can develop is around 49±9 .

Table 1: Percentage distribution of sample according to Family history

		Hyperlipidaemia		Non hyperlipidaemia		χ^2	P
Family history of Hyperlipidaemia	Yes	1	2.5	0	0.0	2.02	0.156
	No	39	97.5	80	100.0		

Table 2: Percentage distribution of sample according to Age

Background characteristics		Hyperlipidaemia		Non hyperlipidaemia		χ^2	p
		Count	Percent	Count	Percent		
Age	30 – 35	3	7.5	21	26.3	15.65*	0.016
	36 – 40	5	12.5	22	27.5		
	41 – 45	8	20.0	11	13.8		
	46 – 50	9	22.5	5	6.3		
	51 – 55	4	10.0	4	5.0		
	56 – 60	6	15.0	8	10.0		
	61 – 65	5	12.5	9	11.3		
	Mean ± SD	49 ± 9		44 ± 10			

People of rural and urban area were equally affected. This shows that increase in serum lipids is mainly due to food and regimen of the individual and residential area have least importance. Hyperlipidaemia can affect all people in spite of the body built but the obese persons may have increased chance of developing the disease **(Figure 1)**.

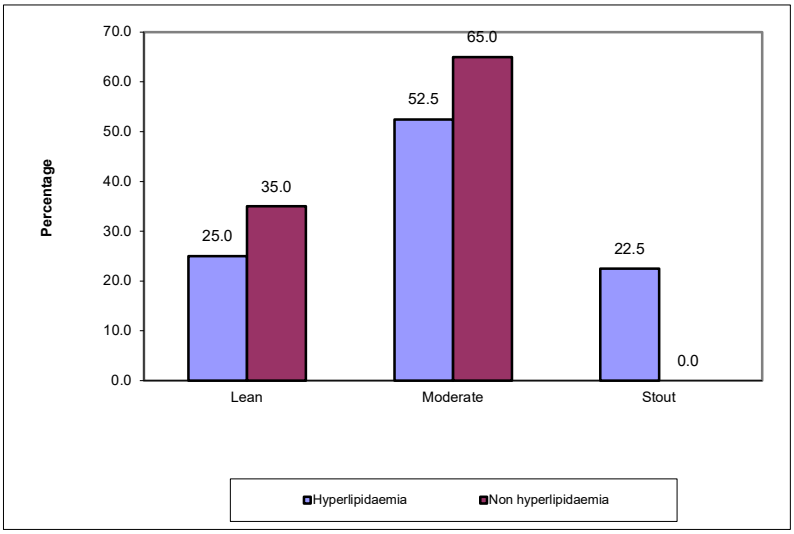

Figure 1: Percentage distribution of sample according to Body built

People who are taking non vegetarian foods especially fried meat items, fish like shrimp, crabs, clams and eggs are more affected than vegetarians. Survey also shown that people who are using saturated fats such as coconut oil and palm oil and re-usage of cooking oil, usage of bakery items such as cakes, biscuits, chocolates, pastries and fried items increased chance of developing hyperlipidaemia **(Figure 2)**.

Excessive intake of alcohol, lack of exercise, smoking and mental stress also aggravated the condition of hyperlipidaemia **(Figure 4)**.

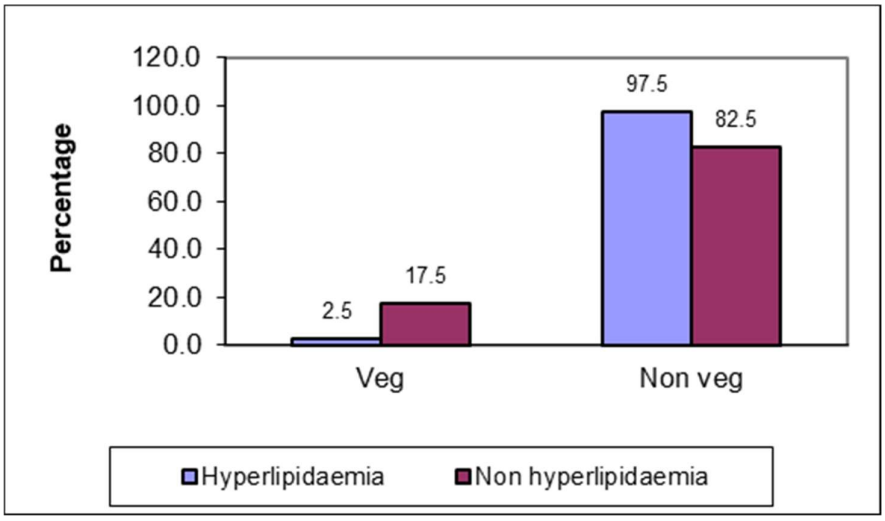

Figure 2: Percentage distribution of sample according to Food type Veg/Nonveg

Table 3: Percentage distribution of sample according to type of Food items: Pickle

		Hyperlipidaemia		Non hyperlipidaemia		χ^2	P
		Count	Percent	Count	Percent		
Use of pickles	Regular	15	37.5	1	1.3	45.91**	0.000
	Occasional	21	52.5	27	33.8		
	Never	4	10.0	52	65.0		

Table 4: Percentage distribution of sample according to type of Food items:Egg

		Hyperlipidaemia		Non hyperlipidaemia		χ^2	p
		Count	Percent	Count	Percent		
Egg	Regular	12	30.0	0	0.0	56.75**	0.000
	Occasional	22	55.0	14	17.5		
	Never	6	15.0	66	82.5		

Table 5: Percentage distribution of sample according to type of Food items

		Hyperlipidaemia		Non hyperlipidaemia		χ^2	P
		Count	Percent	Count	Percent		
Coconut oil	No	8	20.0	37	46.3	7.84**	0.005
	Yes	32	80.0	43	53.8		
Palm oil	No	8	20.0	80	100.0	87.27**	0.000
	Yes	32	80.0	0	0.0		
Sunflower	No	39	97.5	40	50.0	26.75**	0.000
	Yes	1	2.5	40	50.0		

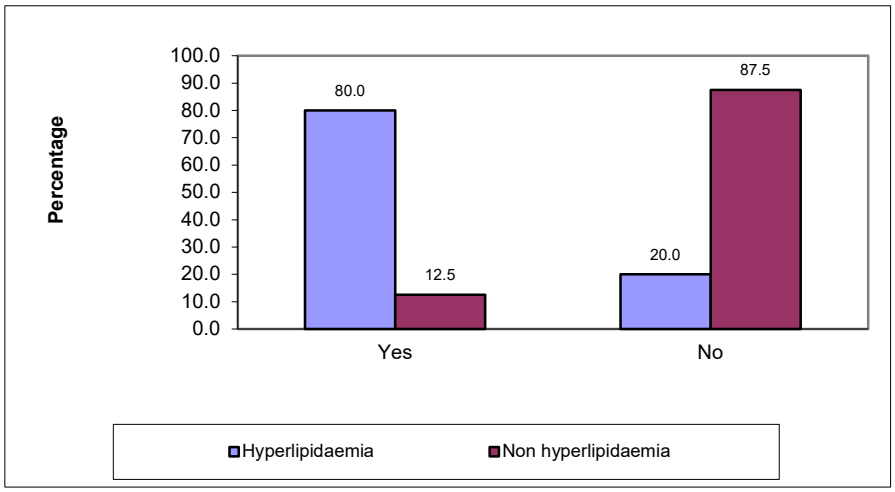

Figure 3: Percentage distribution of sample according Food items: Reuse of cooking oil

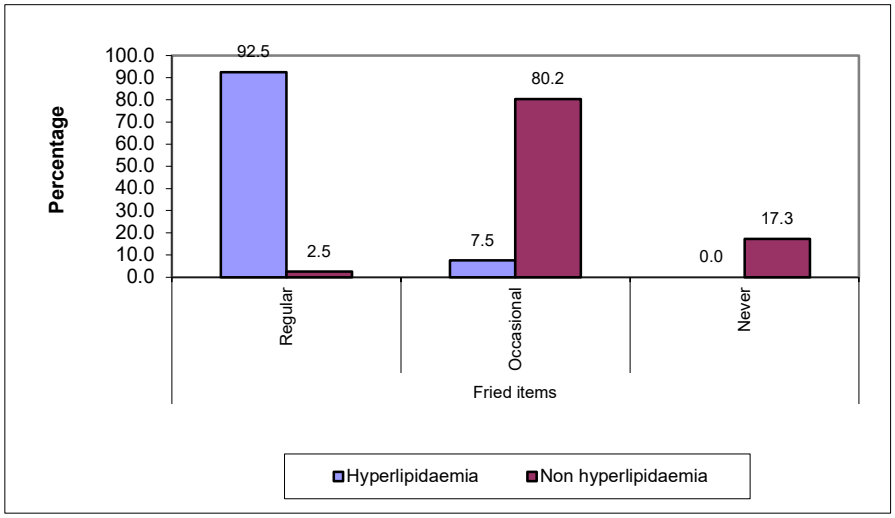

Figure 4: Percentage distribution of sample according Food items:Fried items

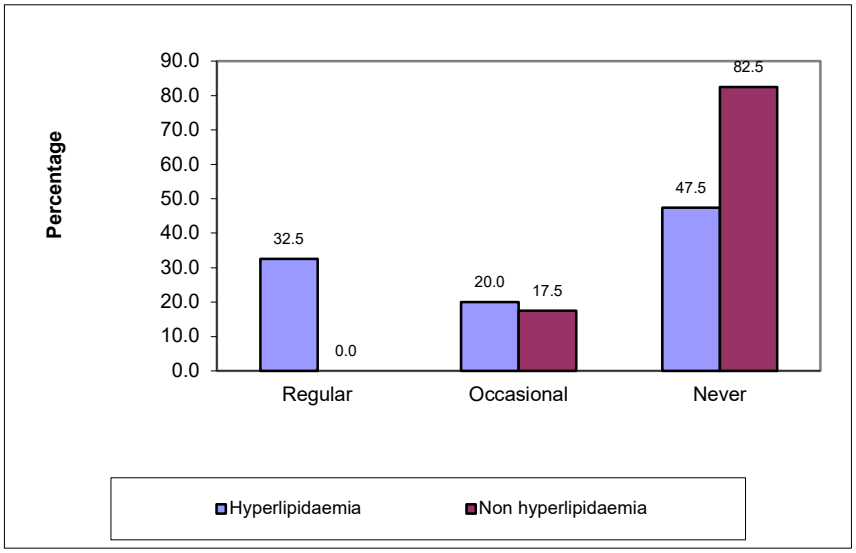

Figure 5: Percentage distribution of sample:Alcohol usage

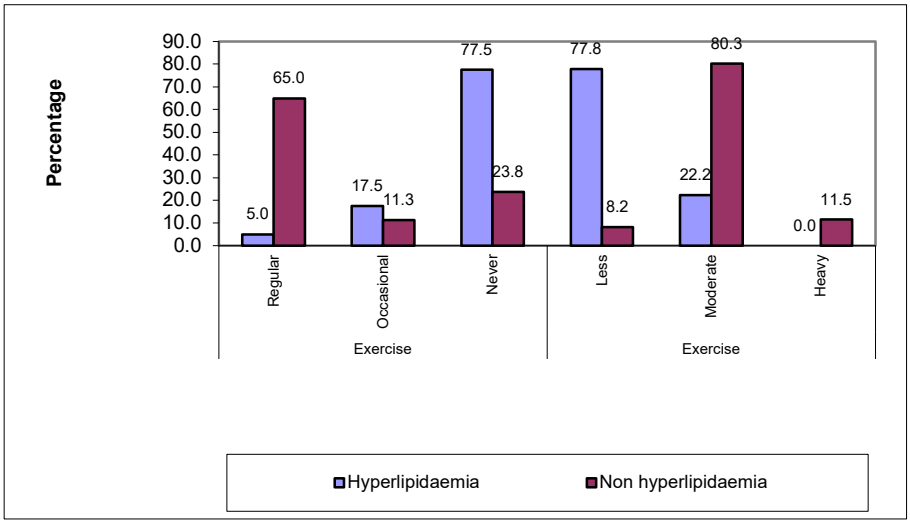

Figure 6: Percentage distribution of sample Exercise

Table 6: Percentage distribution of sample: Smoking

		Hyperlipidaemia		Non hyperlipidaemia		χ^2	p
		Count	Percent	Count	Percent		
Smoking	Frequently	13	32.5	0	0.0	48**	0.000
	Occasionally	7	17.5	0	0.0		
	Never	20	50.0	80	100.0		

Table 7: Percentage distribution of sample according to Mental stress

		Hyperlipidaemia		Non hyperlipidaemia		χ^2	p
		Count	Percent	Count	Percent		
Mental stress	Yes	40	100.0	7	8.8	93.19**	0.000
	No	0	0.0	73	91.3		
Mental stress	Family related	22	55.0	6	7.5	33.63**	0.000
	Occupational	9	22.5	1	1.3	15.76**	0.000

DISCUSSION

Avoidance of the causative factors is having prime importance in the prevention as well as cure of the disease.Any factor which has a tendency or capacity to produce a disease is considered as nidana in ayurveda **[11]**. A particular factor does not always produce the same disease in all people. Persons with mandagni and kaphaprakrithi are more prone to develop the primary hyperlipidaemia. By analysing the secondary hyperlipidaemia, it is found that long lasting dhatvagnimandya is involved in all conditions. Lifestyle related factors such as usage of fatty foods, fried items, lack of exercise and mental stress etc. can be considered as vyanjakahetus. According to ayurveda, the excessive intake of guru madhura snigdha abhishyandi bhojana and avyayama will increase kapha dosha and causes jatharagnimandya. Manodoshas manifested in the of form fear, grief anger etc. also causes vitiation of jatharagni.

By analysing the etiological factors and condition of hyperlipidaemia in the light of doshadushyas, the samprapthi can be

traced. Being a metabolic disorder, hyperlipidaemia is diagnosed and treated as agnivikrithi in ayurveda. Jatharagnimandya caused by the indulgence in ahitaharaviharas will lead to the formation of ama. This ama will get mixed with annarasa (essence of food). The amayuktha annarasa and increased kaphadosha will vitiate rasa dhathu. Samanaguna will be increased by the usage of similar properties **[12]**. Snigdha and pichilaguna of ama will increase similar gunas in rasadhathu. Snigdha manda gunas of increased kapha will increase the snigdhamanda gunas of rasa dhathu. As a result of that, snigdhamanda and pichilaguna will increase and cause vitiation of rasa dhathu. Since dhatwagnis are moieties of jatharagni **[13]**, jatharagnimandya will lead to rasadhatwagni mandya. Rasa dhathu contains precursors of all dhathus. Hyperlipdaemia is due to alteration in the production, catabolism or defective clearance of plasma lipids and lipoproteins in circulation. Due to rasa dhatwagnimandya, the precursors of medodhathu present in the amayuktha vitiated rasa dhathu will not be properly converted. As a result, rasa dhathu containing precursors of medodhathu will increase. Due to the combined effect of ama, kapha and vitiated rasa dhathu symptoms such as srothorodha, gourava and angasada will get manifested more. Gourava and angasada will occur in the purvarupa of hyperlipidaemia. If the patient is continuing the nidanas without undergoing any proper treatment, srothorodha will occur.Hridaya and dasadhamanis are the moolasthana of rasavahasrothas, therefore blood vessels of heart will be more affected by srothorodha. Since hyperlipidaemia is a santarpanajanya vikara all the depletion therapies will act as upasaya. Dravyas having laghu, ruksha, thikshna and ushnagunas are useful in the management of hyperlipidaemia. Food should be taken according to dietic rules by considering the condition of agni. Aharadravyas having snigdha, guru, pichila and abhishyandi gunas should be avoided. Proper exercise will help in reduction of the increased triglyceride levels. Drugs in lekhaniyagana, vacha, lasuna, guggulu etc are useful. If the patient continuing the nidanas without undergoing proper treatment, the vitiation of other dhathus and srotases will occur and thereby complications will be manifested.

CONCLUSION

Hyperlipidaemia characterized by the presence of increased lipid levels can easily detected through the blood tests. But lipid profile analysis does not give accurate idea about causative factors of hyperlipidaemia, pathogenesis, aggravating and relieving factors etc. The physician who examine the disease by considering the nidanapanchaka will be able to make the detailed analysis of

all factors involved in the disease.Various factors which are influencing the lipid levels such as diet,regimen,genetic and psychological can be evaluated with nidanapanchaka. With the knowledge of nidanapanchaka, the prognosis can also be predicted. Thus a comprehensive treatment protocol can be planned for hyperlipidaemia with the knowledge of nidanapanchaka.

Funding Support

Nil

Conflict of interest

Nil

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