

A comprehensive survey study on impact of demographic, genetic, dietary and other lifestyle factors on the incidence and prevalence of Kapha-medo Margavarana (Hyperlipidemia)

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ABSTRACT

Incidence and prevalence of disorders caused due to metabolic aberration in kapha and medas is mountaineering up in the general public in recent times. The present survey work roofed 87 patients of kapha medo margavarana (Hyperlipidemia) for scrupulous study of factors influencing the occurrence of this stipulation. Greater percentage of the study public was females engaged in house hold works. People from middle and upper socio economic status were dominating. Maximum of the survey populace were worried about their unusual weight gaining and BMI of nearly 30% of them were above 32. Risk factors related to dietetics, life style and genetic issues were seen in major percentage. Psychological stress, unsatisfied sexual life, and inactive living fashion were the other noticeable findings observed. Symptoms and signs of morbidity of kapha and medas, deviation in the normal functioning of rasa vaha and medo vaha srotas were the key results of examination.

Key words: Kapha medo margavarana, Hyperlipidemia, genetics, life style, Body mass index

INTRODUCTION

Kapha medo margavarana is a metabolic derangement in which etiological factors escort to unusual and unwarranted accretion of kapha and medas in various channels of physiology in the body ensuing in

encumbrance to the customary movement of vata dosha and other drava dhatu like that of rasa and rakta. The phenomenon of kapha medo margavarana work as the principal operative factor in the incidence and progression of a number of ailments like Prameha (Diabetes mellitus), Santarpanotha vyadhi (Metabolic syndrome), Sthaulya (Obesity and Overweight), Vatarakta (Peripheral arterial disorders), Hridroga (CVD) etc. The incidence of Dyslipidemia and its prevalence has become extremely common in Indian populace due to the metabolic consequences associated with changes in diet and lifestyle.

The formation of excess of kapha and meda consists mainly of kleda, and as text opines the unwanted buildup of abadha meda is nothing but ama (free radicals); leads to

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avarana (blockage/encapsulation) in the affected srotas (atherosclerotic changes). The free radicals are always in a state of instability due to the presence of unpaired electron in the outer shell and needs to get stable so are highly reactive chemical entities. In the same way ama is a highly reactive pathological entity which takes part in the pathogenesis of so many illnesses [1].

The reference of kapha medo margavarana is accessible in the context of Vatarakta[2]. Where the row of management in kapha medo margavarana janya vatarakta is absolutely diverse from that of routine line of dealing. The direction of guggulu, shilajit and rest of the medications elucidated in this juncture is also advocated in other analogous situations akin to Prameha, Sthaulya, Hridroga screening that the pathology concerned in all these are identical.

The present study was an endeavor to apprise the jeopardy issues of kapha medo margavarana (Hyperlipidemia) in relation to the genetic, life style, and diet facets and also to make a picture on common clinical appearance of this metabolic derangement.

Aims and objectives

The study was targeted out to get a broad-spectrum portrait on role of various demographic, genetic and other common risk factors on the incidence of kapha medo margavarana (Hyperlipidemia) and also to scrutinize the dosha, dooshya and other pathological factors involved in the demonstration and evolution of kapha medo margavarana with clinical presentation.

MATERIALS AND METHODS

Eighty seven patients with high blood lipid profile who attended the OPD of Department of Kayachikitsa of IPGT & RA hospital, Gujarat Ayurved University, Jamnagar during the period of April 2010 to March 2011 were included in this study irrespective of their sex, caste and creed. The informed consent was taken from every patient prior to the

starting of the survey work. A thorough proforma was prepared incorporating all the points of demography, history taking and examination aspects in which the data were documented. Descriptive statistical analysis was done for the vital records.

Criteria for inclusion

Serum total cholesterol level -201mg/dl or more

Serum triglyceride level - 151mg/dl or more

Serum LDL-C level - 131mg/dl or more

Serum VLDL-C level 41mg/dl or more

Exclusion criteria

Patients below 25 years of age and above 60 years of age were disqualified from the inspection. Also cases of type 1 Diabetes mellitus and those afflicted with serious systemic disorders were not selected for this work.

OBSERVATIONS AND RESULTS

Out of 87 patients who became participants of this study almost 64% were females as against barely 36% males. Even though the age criteria for the selection of study were 25-60 yrs, utmost number of patients belonged to the age group of 45-55 and 35-45 (33% and 31% respectively in each class). Chief part of the subjects under this study was from Hindu society (71 patients i.e.; 81.61%) and residual 16 (18.39%) pursued Islamic beliefs. Among 87 patients of kapha medo margavarana taken for the survey a highest of 80 (nearly 92%) subjects were wedded and meager 4% were single and an additional 4% were leading widow life.

Maximum 35.63% of public had achieved basic tutoring, where as 19.54% people had the educational rank up to graduate echelon and 6.90% obsessed the degree of post graduation in their topics. 11.49% and 3.45% had only primary or mid school level tuition correspondingly and 6.90% stayed illiterate. It is observed that 55.17% of patients (females)

were house wives by their occupation, shaping the principal category for the current study leaving behind the patients engaged in the other professions. Patients engaged in business (16.09%) and office related works (8.06%) formulate the further two most important class in this division. 60.92% of patients fit in to mid socioeconomic rank and 19.54% and 2.30% were from upper middle and rich classes respectively. The rest 16.09% and 1.15% were from lower socio economic grade.

The mean height of 87 patients integrated in the survey was 163.943 ± 0.903 ; mean mass was 78.003 ± 1.409 and mean BMI was 29.102 ± 0.568 . BMI of highest digit of patients were higher than 23 (88.51); in which 29.89% had BMI 32 or greater than that. Only 11.49% had BMI below 23.

When Holmes and Rahe stress scale in terms of life change units was judged in the study populace about 50.57% had reported to have stress and strain range scoring between 1-300; but none of the patient had score above 300.

Clinical observation

There were 82.76% of patients complaining of remarkable weight gaining. Generalized fatigue (70.11%), pain in major weight bearing joints (45.98%), weightiness of body (40.23%), exertional dyspnoea (33.33%), hyperhidrosis (32.18%), polyphagia (32.18%), polydipsia (29.86%), lethargy (5.75%), hypersomnia (3.45%), disproportion of body parts due to projected belly-breast-hip-waist etc (35.63%), awful odor of perspiration (32.18%) were the other widespread complaints observed in the survey mass. The stipulation was chronic in all the patients (100%); where 57.47% reported to have slow commencement of above said troubles whereas in 31.03% the beginning was subtle. None of the patients reported to have acute or sudden onset. The general path and succession of the illness was unremitting in the majority of the subjects (77.01%) next to 22.99% of patients who had intermittent course. The chronicity of the sickness was recorded to be of 1-5 years in about 54.02% of patients. 20.69% of people participated in this survey gave previous history of high blood cholesterol levels. 28.74%

patients were hypertensive, 14.94% were type 2 diabetic, 3.45% were suffering with peripheral vascular diseases, 1.15% had renal complaints and 3.45% were known cases of IHD. 21.84% of patients are taking medicine containing beta blockers, history of intake of estrogen pills were present in 6.90% of patients. History of administration of gluco corticoids (3.45%) and bile acid binding resins (1.15%) was also present in a few portions of the patients.

Role of genetics

Familial history of dyslipidemia was been reported in about 18.39% of patients. Obesity was running in the family of 45.98% and Diabetes mellitus in 37.93%. IHD in 3.45% of families and hypertension in 21.84% was also been observed during the study.

Dietetic observation

In maximum fraction of the public desire for food was very high (55.17%), and modest in 37.93% of subjects. Poor hunger and low desire for food was observed just in the minor fraction of 6.90%. The major part of the present study populace was following strict vegetarian diet (64.37%) against the mixed diet followers which comprises of only 36.78%. The favorite and most commonly used flavor in plates by most of the patients were katu rasa (pungent) followed by madhura rasa (sweet) encompassing of 78.16%. Lavana (salt dominating) was also been used significantly in eatables by 45.98% of patients. Dominance of guru guna (food articles and dishes that are heavy in quality) was noticed in the ordinary diet of 82.76% of patients, followed by snigdha guna (oily and fatty) used by 57.47% of subjects. Food stuff with sheeta guna (cool by nature) is in routine use by 39.09% and also ushna guna (naturally hot articles) by 45.98%. None of the subjects following proper diet pattern and habits were noticed in the present study. On the other hand irregular diet pattern was in practice of 81.61% and faulty dietary habits like samasana (mixing of wholesome and unwholesome items) in 43.68%, eating beyond ones digestive capacity or taking food

prior to the digestion of previous meal (adhyasana) in 50.57% were also observed in the study population. Wheat is the major staple food of the locality (91.95%), while rice holds the next place with 78.16% using it daily in their mealtime. Dal items are the next major ration in 77.01% of subjects. 80.86% was using root tubers in their food stuffs regularly. Green leafy vegetables are part of the diet of 90.80% people.

Among fruit items banana (52.87%) and mango (50.57%) are the most common ones used by major division of this study group. 91.95% of people are taking tea daily where as 25.29% prefer to have coffee.

Food substances which are prepared by deep frying in oils are in regular use of 66.67% of people. The most widely used cooking oil by 57.47% of present survey population is cotton seed oil 27.59% use ground nut oil for cookery purpose. Sunflower oil by 8.05% and another 4.60% use soya been oil. Among 32 non vegetarian taking subjects who came under this work, 84.38% are taking poultry chicken. Amongst red meat, mutton is in use of 71.88% people. Sea foods are in regular practice of 59.38% and eggs by 53.13%. In milk and milk products; butter milk is taken by 81.61%, milk by 66.67% and curds by 57.41%. About 27.59% of patients prefer to take sweets daily in their ration, ice-creams by 9.19%, cheese by 14.94% and butter by 8.05%. When the history regarding habits and addictions was taken; it was found that 24.14% have the practice of masticating tobacco and beetle leaf. 2.30% were having the habit of alcohol intake.

Life style observations

Proper exercise is in practice of only 21.84%. In this study public 14.94% does work out on a regular basis, and 17.24% do exercise occasionally. 67.82% are not doing any kind of work out at all. 20.69% of people even though doing some kind of exercise it were inadequate. On the other hand exercise is surplus than requisite in another 16.09%. As far as the relaxing time is concerned, 47.13% are taking break more than what they need. Appropriate rest by 41.38% and in a further 11.49% relax time are inadequate. 56.32% are

leading a pleasing sexual life, where as 32.18% are not happy with their sexual living. Residual 11.49% were not agreeable to disclose anything regarding their sexual life.

Quality of sleep was reported to be fine and appropriate in 68.97%, improper in 31.03%. Sleep found to be excess in 36.78% and about 10.34% had distressed/breaking sleep. Maximum patients (80.46%) under this study have the habit of regular day sleep. In which 24.29% were taking sleep in day time for more than 2 hours. In the same way about 45.98% were sleeping for more than 8 hrs in night time; whereas 9.20% of study populace used to sleep for less than 6 hrs /night. Major part of this study masses were leading a sedentary lifestyle. Line of profession requires moderate work in 31.03% and heavy working profession was seen in only 9.20%. 44.83% of people were psychologically stressed and found to be mentally tensed. Another 44.83% were psychologically inactive; and remaining 10.34% showed extremely pleased mental status.

Highly sensitive bowel habits was seen in 9.20%, while it was medium sensitive in major part i.e.; about 62.07% of total study population. Remaining 28.74% had hard bowel habits. Excessive and frequent urination was present in 11.49%, whereas 5.75% were passing turbid urine and burning micturition was observed in 3.45%. Urination process was not satisfactory in 2.30%. Rest of the patients (85.06%) had normal urination.

Out of 56 female patients who came under this study; 94.64% attained their menarche between the ages of 10-15 yrs. The 5.36% had reached menarche between 16-20 yrs. 60.71% of these female patients were still in their fertile period. 19.64% attained menopause between 35-45 yrs, another 19.64% reached menopause between 46-55 yrs. Menstrual histories also revealed the nature of irregular periods in 48.21%, and painful bleeding in 58.93%, scanty blood flow in 42.86%, and the same was heavy in 12.5% of females. In about nearly 18% of people history of abortion / miscarriage was noted.

Examination findings

In regard to physical constitution, Pitta pradhana kapha prakriti were more (35.63%), followed by Vata-kapha (27.59%) kind of structure. In manasa Prakriti; satva-tama and raja-tama people were more (37.93% each category). Vikriti bala was either pravara (25.29%) or madhyama (74.71%) in the current study public.

Sara pariksha provided madhyama result in 85.06% of study public and avara in 14.94%. At the same time; 67.82% had heena pramana and it was madhyama in 32.18%. The compactness of the body was madhyama in 56.32% and avara in the rest. Satva-the mental power to tolerate the brutality of the illness was madhyama in 58.62%, avara in 33.33% and pravara in 8.05%. Nearly 62% of the study populace were accustomed to more than one or two rasa, while 22.98% were adapted to only one rasa; 3.45% were familiar with all the six rasa. The physical strength to carry out demanding works were avara in maximum number of patients (67.82%). 31.03% had madhyama vyayama shakti and pravara in 1.15%. The abhyavaharana shakti which can be assessed by the quantity/amount of food stuff taken was madhyama in 47.13% and pravara in 37.93%. About 3.45% had poor intake capability. The power to assimilate the taken food was madhyama in 54.02%, pravara in 40.22%, and avara in 5.75%. Vaya (age classification) comes in madhyama category for all the 100% of patients.

Scrutiny of etiological factors illustrated the role of

1. aharaja nidana-(causes related to dietetics) in 67.82%,
2. viharaja-life fashion factors (86.21%),
3. manasika-psychological grounds (56.32%),
4. beejdushti-genetic and hereditary roots (73.56%),
5. vyadhi vishesha-association of other disorders which can lead to kapha medo margavarana (43.68%).

As a component of evaluation of samprapti, pathophysiological factors involved in each case of kapha medo margavarana were also

examined. Kapha vridhi lakshana were present in 88.56%, kshaya of kapha dosha in 3.45%, morbidity of the same in 39.08%. Signs and symptoms of pitta vridhi seen in 52.87% and prakopa in 9.20%. Vata vridhi observed in 48.28%; vata prakopa in 27.59%. Among the sapta dhatus and related srotas, rasa kshaya observed in 3.45% and morbidity of rasa vaha srotas in 72.41%.

Channels carrying rakta dhatu were affected only in 3.45%. Mamsa vridhi lakshana observed in 36.78% and kshaya in only 1.15%. Morbidity of medo dhatu was seen in about greatest of 90.80% and sroto dushti in 57.47%. Asthi kshaya symptoms were present with 41.38% and srotodushti in 4.60%. Majja kshaya in about 26.44% and vridhi in 13.79%. Out of 31 male patients in the study 3.23% had shukra dhatu kshaya lakshana and shukra vaha sroto dushti lakshana were seen in 22.58%.

Coming to the trimala; 39.08% people had the symptoms related to sweda vridhi and 34.48% with sweda vaha srotodushti. Purisha vaha srotodushti lakshana seen in 26.44% and 3.45% showed symptoms of purisha vridhi. Mootra vaha srotodushti seen in about 17.24%. Udaka vaha srotas morbidity seen in 19.54% who came under this study. 5.75% were presenting with the symptoms of annavaha sroto dushti. In about 18.39% ojo visramsa lakshana were present, kshaya lakshana in 34.48% and vyapat in 6.90%. Important observation obtained through ashta vidha pariksha are, mootra vaikrita in 17.24%, mala vikriti in-32.18%, vaikruta akriti in 63.22%.

DISCUSSION

The major part of existing survey populace comprises of females. On mere basis of this finding, it is not possible to conclude that women are getting more affected with the condition of Kapha medo margavarana. The grounds for greater number of female patients in the study can be more probably due to the better attentiveness among females about their body status than their opposite gender; which makes them to seek hospital prescription[3].

More over the study sample is taken from those patients who visit the OPD of IPGT&RA, GAU, Jamnagar. As per the hospital records also female ratio of patients who took OPD treatment are much more during the study period[4].

In view to the age prevalence, Hyperlipidemia is unquestionably a metabolic aberration which happens to be more and more obvious as the age advances. Even though the condition does not present with any precise symptoms, it acts as a risk factor for many number of other pathological conditions namely atherosclerosis, CVD etc. The pathophysiology involved in the present stipulation is avarana, and when the development of encapsulation and consequential blockage progresses, vata gets sternly morbid resulting in manifestation of vatavyadhi, which is particularly dominated in the elder population. Perhaps this may be the reason that more patients in this study belonged to upper age categories.

People following hindu ethnicity and believes were dominating in this study. But interpretation of this as people from hindu community are more prone to develop kapha medo margavarana will be certainly a false statement, as this prevalence of hindu population in the present work is due to the majority of Hindus in the general population of Jamnagar vicinity/Gujarat. But the lifestyle prototype and food trend followed by certain communities from centuries can be the basis for prevalence of dylipidemia and similar conditions in the same societies.

Likewise the work consists of more married people than those who are single. Matrimonial status is neither an etiological factor nor a risk factor of Hyperlipidemia. But the surplus stress and burden suffered in marital life by many people can promote accelerated aging leading to early occurrence of features of kapha medo margavarana [5].

Educational status is a prime milestone formative of excellence and standard of any living population. In this survey; most of the people had good educational status. There is no evidence based relation between educational status and incidence of lipid

abnormalities. But once again the awareness of health or ill health status will be more likely to seen among educated people. After all conditions like hypercholesterolemia came into the notice of general public only from last few decades, that most of the illiterate people are ignorant that it is a state which needs to be medically intervened. This can be the reason for the presence of more number of educated people in this study. Highly educated people usually live in rich environments and sedentary living atmosphere or engaged with white color jobs.

Major proportion of the subjects was housewives by vocation in this study irrespective of their educational status. This is a general demographic outline of numerous studies conducted in most part of the country (India); in which females make the chief participation. The deskbound living pattern among housewives can endorse the abnormality of patho physiological factors of kapha medo margavarana .Classics consider inactive life style as a risk factor for the development so many illnesses caused by kapha and meda. Middle and upper middle class citizens were more in the study. Again awareness, life style modes, diet related sources etc can be the cause for this.

The mean BMI of the survey public is much higher than the normal standards and many of them were morbidly obese .In a survey study conducted in Ayub Medical college, Pakistan it was been concluded that there is increase in dyslipidemia trend in the study subjects with increase in BMI and age .It can be recognized that obesity is in linear relation with dyslipidemia [6].

In the same way as per texts; Sthaulya is multifactorial - multifaceted and chronic disease in which excessive accumulation aberrant medo dhatu occurs in specific body depots resulting in overweight and obesity. Etiological factors points towards the significant role of morbid kapha and meda in the manifestation of this illness. It is not a hard and fast rule the pathology of kapha medo margavarana must always been allied with overweight and obesity. The condition can remain asymptomatic, may be showing other

features related to kapha and medo dushti, or in chronic stage may be expressing with vata vridhi lakshana.

In the present work; none of the subjects were asymptomatic; every patient was presenting with some or other features cited below. Gaining weight was the most common grievance observed in maximum number of patients. The reason for the same is already been explained.

Dourbalya and sandisoala were the other two extensively observed complaints. Both are the features of morbid vata. Staulya associated with most of the cases can be a reason for pain in major weight bearing joints and general weakness. When the etiological factors are in favor of kapha and medo vridhi, other dhatu especially like that of asthi (bones) which comes after medas is not getting enough requirements of nutrition. Further; the blockage formed in bio-transforming channels further vitiates vata. All these lastly results in asthi kshaya and ojo kshaya etc leading to the onset of daurbalya and sandi soola.

Feeling of heaviness of body, laziness, excess sleep etc are the typical features of morbid kapha and medas. Both kapha and medas possess the quality of guru, so excess formation and accumulation of the same leads to guruta of sharira. Inactiveness/inertness is a result of this kapha vridhi where person loses interest in doing any work. Sleep dominates with the bhava of tamas and kapha; and the excessive sleepiness in patients of kapha medo margavarana can be considered as vaikarika/doshaja nidra. Sleep is a state helping in energy preservation; nearly all voluntary muscles are in a state of inactiveness during sleep. Since the metabolic energy is not meeting with the required amount needed for physical and mental activities, the patient may tend to sleep for more time to decrease metabolic energy consumption.

Sweda is a metabolic waste product of medas. When the metabolism of medo dhatu gets impaired there will be excessive formation of waste products also. This leads to undue sweating. When there is abnormal accumulation of unwanted waste minerals in the body the sweat glands have work more to

remove these waste products. Kleda is an apya substance e.g.: body fluids present inside and outside the body cells [7]. Increased fluidity of kapha and looseness of meda can cause abnormal elevation in the levels of kleda. In normal situations sweda maintains the normal kleda bhava in the body as it is necessary for retaining sneha / snigdhatta in the skin and also to uphold body and scalp hairs [8]. When kleda is produced in excess then there will be atipravritti of sweda vaha srotas resulting in swedadhikya. Polyphagia and polydypsia are the other two features complained by many of the patients. Due to the hypo-functioning of dhatwagni, tissues are not getting enough energy for the proper functioning, which makes the digestive fire to become over active, and in a trail to achieve more energy from the food stuff. As a result of this patient presents with increased appetite and thirst.

Dypnoea result when the need for ventilation is not being met with the physical breathing that is occurring. The proper physical breathing requires appropriate functioning of diaphragm, external and internal intercostal muscles, abdominal muscles and accessory muscles. If the level of respiration is inadequate then dypnoea may occur. Dyslipidemic patients usually suffer with dypnoea on exertion when the condition is associated with obesity or cardio vascular abnormalities. Usually this sensation of air hunger is related to insufficient tissue oxygenation by the blood.

The formation and evolution of kaphamedo margavarana is always a slow process. Long term indulgence in factors promoting kapha and medas causes unusual and undue buildup of the above two in channels of physiology, mainly in rasa and rakta vaha srotas (ama). As far as the contact of etiological factors are ongoing, the progression of this accumulation also continues to develop. There will be sudden and dramatic onset of symptoms only in those cases, in which inclusive occlusion occurs. So only in the present work maximum percentage of people had slow start, gradual progression and history of 1-5 yrs chronicity.

Hypertension, obesity, diabetes mellitus, renal disorders, peripheral vascular disorders,

cardiovascular diseases and dyslipidemia are closely linked conditions. Most of the time one act as risk factor for other. The situation of most of the above said pathological conditions presented together (metabolic syndrome) is also becoming high in prevalence. It is the same margavarana which result in raktaja mada (Hypertension), sthaulya, apathyanimittaja prameha, vata rakta and hridroga. So the existence of these pathological conditions one or more together is justified.

Familial history of dyslipidemia/obesity/diabetes mellitus/hypertension was present in major fraction of the study populace. On the basis of these findings it can be accomplished that genetics play one of the most important role in the manifestation of all these disorders. Kulaja vikara are said to be asadhya. In persons where the hereditary tendency of aberration in kapha and meda are present the conditions are considered as mostly incurable.

Both the appetite and digestive capacity; remains relatively high in a good number of the patients. It is now established that to maintain required energy level of the fat stores obese persons eat more than average. The total daily energy expenditure is higher in obese than lean individuals [9]. Even though most of the individuals are following strict vegetarian ; it is not going to give a beneficial effect in Hyperlipidemia as the food stuff are highly rich in carbohydrate and dishes are prepared with oils containing saturated fats. Excess intake of madhura rasa,snigdha - guru-sheeta dravya will straight away lead to kapha and medo dushti. Food articles that are heavy in quality and at the same time work as atarpana (producing early satiety, delayed hunger onset and of less calorie) is the typical choice in the management of kapha-medo margavarana. On the other hand articles which are heavy both in quality and quantity, highly fatty, cool in potency are no need to say will act as triggering factors of kapha medo margavarana. Faulty methods followed in food intake are an equally responsible culprit for the improper digestion and impaired assimilation. Adhyasana (over eating and frequent intake),samasana (addition of pathya and apathya together), irregularity are some of the improper dietetic patterns observed in

study group. Coping up with these irregular patterns of food ingestion is always a dispute for the metabolic fire.

Wheat, rice and dal products are the most dominating staple food in this part of locality. Root tubers like potatoes which are prepared by various cooking methods are used in a wide number of dishes. All these eatables are mainly carbohydrate and vegetable protein rich. One of the study conducted in U.S has come into the conclusion that high intake of vegetable protein from gluten may have beneficial effects on cardio vascular disease risk by reducing oxidized LDL, serum triglycerol, and uric acid [10]. Green leafy vegetables are a part of dish in major part of study populace. They are low in calorie and high in vegetable fiber; so should definitely help in reducing high cholesterol levels. But again there can be drastic differences in qualities of a substance when they are used in raw and when cooked. The cooking method followed also to a great extent decides the property of a food article.

The glycemic index of banana is very high and bulky intake of banana can raise both blood sugar and blood fat levels. It is now believed that due to presence of high level of soluble dietary fiber, pectin and vitamin C mangoes may be helpful in lowering serum cholesterol specifically LDL cholesterol [11]. But the claiming of beneficiary effect of mango in blood fats levels need to be evaluated further.

Another major finding noticed in the study was high usage of deep fried food stuffs which are extremely unhealthy. It is an established fact that constant frying in same oils/fats can release even toxic substance. Deep fried articles being heavy can also hamper the metabolic fire; can cause formation of ama both in the level of digestive fire and cellular plane (free radicals).

Cotton seed/ground nut / and sun flower are commonly used kitchen oils by this study group. All vegetable oils contain 100% fat, and most of them have saturated fats. So though oils are having beneficiary effects on health promotion, regular and excess intake will produce harmful effects rather than the profits. After all cotton is not coming under the category of food crops ; so the use cotton

seed oil in a wide range for cooking purpose is also dubious.

In regard to the consumption of meat; intake of large quantities of meat no matter whether it is white or red is beyond doubt having unfavorable effects like that of high blood cholesterol, obesity, heart disease etc. But in general white meat is considered as comparatively safer than red meat. Because of high content of saturated fat red meat intake is associated with cardio vascular diseases and increased risk of type 2 diabetes.

Cholesterol content present in milk and milk products is very high. Except butter milk (fat removed) milk and milk goods are having snigdha, guru and sheeta guna. So the consumption of these articles continuously and for long time will have adverse effect on cholesterol levels. Recent in vitro studies have shown that butter milk has strong inhibitory effect on cholesterol micelle solubility [12]. It has been reported that, terpenes, a type of oil present in coffee can cause marked increase in level of LDL and total cholesterol counts [13]. The habit of frequent and continuous intake of drinks like tea, coffee or aerated drinks are not beneficial for health and will certainly hamper the normal performance of agni.

The most common effect of alcohol on plasma lipid levels is to increase plasma triglyceride. The qualities of madhya are quite contradictory to ojas and sapta dhatu and for the same reason habitual usage leads to diminution in dhatu level. Oestrogen therapies can increase VLDL levels and tobacco leads to reduction in HDL levels [14].

From the life style pattern of study subjects it is clear cut and evident that most of them are following a deskbound standard of living. Less physical strain, insufficient or lack of exercise, more time spending for leisure and sleep were the broad pattern observed. All these are the triggering risk factors for dyslipidemia. Excess calorie intake and reduced burning of energy is the major cause for kapha medo vridhi and its excessive accumulation.

Overall psychological assessment revealed the stress full living condition in many of the

subjects. Both atichintana and achintana can make a person inert/inactive. This dullness of mind is having direct impact on body which makes the person inoperative.

Many of the study subjects were suffering with hard stools and constipation. This can be measured as vata vridhi lakshana. The main function of mootra is to drive out the excess kleda from the body. The abnormal accumulation of kapha and medas is nothing but the kleda vridhi, so as a part of eliminating these wastes from the body frequent and excessive urination is needed. Avila and prabhuta mootrata observed in some patients can thus be justified. A portion of the study subjects were also suffering with Diabetes mellitus. Due to this reason also medo dushti, sthana samsraya of dosha in basti, creation of excessive kleda and involvement of mootravaha srotas can take place.

Acharya sushruta in the context of Prameha has opined that as long as there is proper menstruation; females are not going to suffer with unfavorable effects of Prameha¹⁵. The recent research works done in this field also moves in the same line. The female hormones are playing a significant role in prevention of a major number of systemic and metabolic disorders in them. The raising of blood fat levels is controllable in females when they are in the fertile period even though age increases. But once menopause is attained, there are dramatic changes in the hormonal level and the same is having a negative impact on cholesterol levels also. Menstrual irregularities and problems like scanty bleeding obtained in many of the females need further evaluation for scrutiny of the cause. But at any cause it is not a good sign of healthy physiology. Artava is considered as the upadhatu of rasa. Major part of study populace is suffering with medo dushti and staulya. Both rasa and rasa vaha srotas are involved in the pathogenesis of medo dushti. So the affliction of artava in pathogenesis of medo dushti is also common in such patients. While explaining the etio-pathology of Sthaulya the role of shukra and artava is also been specified [16]. So in such way also impairment in the normal functioning of shukra and artava can be authenticated. Even though not gone into the

depth behind the complaints like unsatisfactory sexual life, disharmony in menstrual cycle, history of miscarriage and abortion the above said reasoning cannot be completely ruled out.

Kapha was either the core or the allied dosha in the Prakriti of most of the subjects. So it can be interpreted that kapha involved prakriti persons have more tendency to develop the manifestations caused by kapha-medo margavarana. In the same way the dominant tamo bhava in more portion of the patients show the inert nature of these subjects. Vikriti bala was pravara mainly in such patients where multiple etiologies and all the three dosha are involved. The examination findings revealing the bala of patient like dhatu sara, samhanana etc were either heena or madhyama in maximum number of subjects. Since the condition of kapha medo margavarana is a chronic one; the long course has declined the bala of persons. As the major number of persons was obese the pramana was recorded as avara.

CONCLUSION

Kapha medo margavarana is a unique pathological concept of Ayurveda observed widely in association with the pathophysiology of multiple numbers of disorders. Multifactorial risk factors like genetic, environmental, age, diet, and lifestyle are playing a vital role in deciding the incidence and development of these conditions. Though slow in onset and progression the end stage of this metabolic impairment is frequently deplorable and irreparable. By firm following of healthy dietetics, physically and psychologically active life style the situation of kapha medo margavarana can be modified to greater degree.

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Fig. 1. Showing the mode profession in patients of kapha medo margavarana



Fig. 2. Showing the psychological assessment in patients of kapha medo margavarana



Table 1. Showing the evaluation of etiological factors in subjects of kapha medo margavarana

NIDANA	NUMBER OF PATIENTS	% OF PATIENTS
Aharaja	59	67.82%
Viharaja	75	86.21%
Manasika	49	56.32%
Vyadhi vishesha	38	43.68%
Beeja dushti	64	73.56%