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CONCEPTUAL STUDY OF MED-DHATWAGNI BY EVALUATING ROLE OF LIPID PROFILE

DR.SAGAR DEVIDAS GORE, ROGNIDAN & VIKRITI VIGYAN DEPARTMENT, CSMSS AYURVEDIC MAHAVIDYALAYA , KANCHANWADI, CHHATRAPATI SAMBHAJINAGAR.

GUIDE & HOD- DR.D.J. AMALE, ROGNIDAN & VIKRITI VIGYAN DEPARTMENT, CSMSS AYURVEDIC MAHAVIDYALAYA , KANCHANWADI, CHHATRAPATI SAMBHAJINAGAR.

ABSTRACT-

The concept of tissue metabolism, or Dhatwagni Paka is unique to Ayurveda. It comprises complete nutrient absorption and body structure development. The primary functional component of the Dhatwagnipaka is Agni, which is the chemical responsible for metabolic transformations. The phrase "Dhatwagnipaka" describes the sequential changes that occur when food is digested through the use of seven Dhatwagni entities. The structural and functional units known as Dhatus (tissues) in Dosha Dhatu Mala Shaareeram (Ayurvedic Physiology) serve as the seats of Doshas and Malas. Between these factors, there are several correlations and interactions. The other factors alter the physique while keeping the Dhatus in the lead. One of the Agnis working on Meda to transform it into Asthi Dhatu is the Med-Dhatwagni.The idea of a lipid profile in modern medicine is quite comparable to the Meda-Dhatwagni, which serves as the body's carrier for several molecules.

KEY WORDS- Medo-dhatwagni,Meda-Dhatu,lipid profile, HDL, LDL, triglycerides,cholestterol,fats,lipids

INTRODUCTION:

Tridosha, Trimala, and Saptadhatus are the foundations of the venerable science of Ayurveda. Seven Dhatus are created sequentially one after the other, and Dhatwagni is the agent that converts them all. Food that has been consumed is split into two portions, Poshak Bhag and Kitta Bhag. Poshak is utilized to create the Dhatus, which serve as the Sharir's building components. Ras, Rakta, Mansa, Med, Asthi, Majja, and Shukra are the names of these seven Dhatus.

1.MED DHATU AND MED DHATWAGNI-

One of the seven Dhatus mentioned in Ayurveda is Medo Dhatu or fat tissue. It is the fourth tissue in the series and is made up of muscle tissues or Mansa Dhatu. Asthi Dhatu or bone tissues, are preceded by Med Dhatu.

The formation of Med Dhatu or fat tissue, occurs when the Mansa Dhatwagni (tissue fire of the muscle tissue) interacts with the Poshaka Mamsa (nutrients of the muscle tissue creating it). Mamsa Dhatwagni should be in its regular condition for this conversion. As a result, Prakrit Med provides the body with Lepana Karma (insulation and protection).(1)

2.MARGAG DHATU TRIGLYCERIDE AND CHOLESTEROL CONCEPT

Triglyceride and cholesterol levels are significant indicators of health. There are some significant variations between them. Some diseases may be avoided by monitoring and maintaining triglyceride and cholesterol levels within a safe range.

Triglycerides are a form of blood fat that are used as an energy source. The liver produces cholesterol, which is a fatty, waxy molecule. Cholesterol is used by the body to create some vitamins and hormones as well as new cells. The body uses triglycerides and cholesterol for many purposes. Both of them should remain within the advised ranges as they are significant indicators of general health. (2)

TRIGLYCERIDES AND CHOLESTEROL-TRIGLYCERIDES: DIFFERENCES

The most prevalent type of fat in the body is a lipid called a tryglyceride, which is found in the blood.

It holds extra energy that comes from the food a person consumes.

RANGES-Normal: less than 150 mg/dL, Borderline: between 151 and 199 mg/dL, High: more than 200 mg/dL, and Very High: more than 500 mg/dL

CHOLESTEROL

It is a lipoprotein, which is a waxy molecule. It contributes to the synthesis of hormones, food digestion, and vitamin D production.

RANGES- 199 mg/dL or less for normal, High: > 240 mg/Dl, borderline: 200–239 mg/Dl

CHOLESTEROL TYPES

LDL or "bad," cholesterol is a form of low-density lipoprotein.

HDL or "good," cholesterol is a type of lipoprotein.

3. ACTUAL FAT CONCEPT OF STHANASTH DHATU/STHAYI DHATU

We might not appreciate body fat, especially if it builds up in certain places like our thighs or belly. But when we are unable to access food for a prolonged period of time, fat is a significant source of stored energy. In addition to fat cells, the matrix of body fat, also known as adipose tissue, also contains neuron, immunological, and connective tissue cells.(3) Hormones that regulate metabolism, hunger, and insulin sensitivity are released by fat tissue, including leptin, adiponectin, tumor necrosis factor-alpha, and interleukin-6. Some of the immune cells that are present in adipose tissue that are involved in inflammation, both pro- and anti-inflammatory, include macrophages, neutrophils, and eosinophils. Additionally, fat cells release proteins and create immune system-related enzymes.

CLASSES OF BODY FATS

The color of fat tissue ranges from white to brown to beige to pink. Some are essential for health.

BROWN FAT - The most brown fat is seen in infants, which helps to keep them warm. Cold temperatures encourage it to produce heat. Increased caloric intake has little effect on the amount of brown fat and obese or overweight people often have lower levels of brown fat than lean people.

WHITE FAT: The most prevalent type of fat is white fat, which is composed of large, rounded cells that are designed to store fat and build up in the hips, thighs, and belly. More than 50 different hormones, enzymes, and growth factors are secreted by them, including leptin and adiponectin, which improve the response of the liver and muscles to the blood sugar regulator insulin. However, if there are too many white cells, these hormones are disturbed and may have the opposite effect, leading to chronic inflammation and insulin resistance.

BEIGE FA: This variety of white fat can be changed to exhibit characteristics akin to those of brown fat, such as the capacity to produce heat when exposed to cold temperatures or while exercising.

PINK FAT: During lactation and pregnancy, this white fat type turns pink, generating and secreting breast milk.

ESSENTIAL FAT: This type of fat, which can be brown, white, or beige in color, is necessary for the body to operate normally. The majority of organs, muscles, and parts of the brain's central nervous system contain it. It aids in the absorption of vitamins and minerals and regulates hormones including estrogen, insulin, cortisol, and leptin as well as body temperature. There could not be enough necessary fat to carry out these activities when a person's body fat falls below a particular threshold (about less than 5% in males and less than 10% in women).(3)

LOCATION-

• Subcutaneous - This layer of fat, which lies right beneath the skin's surface and cushions the bones and joints, can be pinched. Since it is the most prevalent type of fat in the body, it tends to collect in the areas of the waist, hips, upper back, buttocks, and thighs. Though not as much as visceral fat, extremely high levels of subcutaneous fat can raise risk of disease.

• Visceral - An excess of this type of white fat is commonly referred to as "belly fat" or "central obesity," as it builds up deep within the abdominal cavity and encircles vital organs like the heart and digestive systems like the pancreas, intestines, and liver. High levels of visceral fat are associated with an increased risk of diabetes, cardiovascular disease, and several malignancies. It might release inflammatory substances.

MED-LDL/HDL/CARRIIER L4.

To and from cells, two different lipoprotein types transport cholesterol. Low-density lipoprotein, or LDL, is one. High-density lipoprotein, or HDL, is the other. The quantity of each type of cholesterol in your blood is determined by a test. (4) Bad LDL cholesterol

Due to its role in the development of atherosclerosis, or the deposit of fat in the arteries, LDL cholesterol is regarded as the "bad" cholesterol. As a result, the risk of heart attack, stroke, and peripheral artery disease (PAD) is increased.

GOOD CHOLESTEROL HDL

Because a healthy amount of HDL cholesterol may prevent heart attack and stroke, it is sometimes referred to as the "good" cholesterol.

LDL (bad) cholesterol is transported by HDL from the arteries back to the liver, where it is digested and eliminated from the body. However, LDL cholesterol is still there even when HDL cholesterol is present. HDL can only carry between one-third and one-fourth of blood cholesterol.

TRIGLYCERIDES

High triglyceride levels, high LDL (bad) cholesterol, and either low HDL (good) cholesterol are linked to fat deposits within artery walls, which increases the risk of heart attack and stroke.

AVERAGE RANGE OF CHOLESTEROL

Less than 200 mg/dL of total cholesterol.

• HDL ("good cholesterol") levels of at least 60 mg/dL.

Less than 100 mg/dL for LDL ("bad cholesterol").

Triglyceride levels should be under 150 mg/dL.

5. FAT FORMATION

Within the body, fats (or triglycerides) are either eaten through meals or are produced from carbohydrate precursors by adipocytes or hepatocytes. The process of metabolizing lipids involves oxidizing fatty acids to produce energy or create new lipids from their smaller subunit molecules. Due to the fact that metabolites of glucose, such as acetyl CoA, can be transformed into lipids, lipid metabolism is linked to carbohydrate metabolism.

In the intestine, pancreatic lipases, which break down fats after they have been emulsified by bile salts, break down ingested triglycerides into free fatty acids and a monoglyceride molecule. Cholecystokinin (CCK), a digestive hormone, is released by intestinal cells in the intestinal mucosa when food enters the small intestine as chyme. In order to release the stored bile salts into the intestine, the pancreas releases pancreatic lipase, and the gallbladder contracts in response. Additionally, CCK travels to the brain, where it can reduce hunger.

6. LDL/HDL'S ROLE IN FAT FORMATION

Triglycerides are broken down into free fatty acids by pancreatic lipases after being emulsified by bile salts. The gut membrane can be crossed by these fatty acids. However, after passing through the membrane, they unite once more to create new triglyceride molecules. These triglycerides are packed with cholesterol molecules in phospholipid vesicles known as chylomicrons within the intestinal cells. The lymphatic and circulatory systems' watery environments are made possible by the movement of lipids and cholesterol by chylomicrons. Chylomicrons exit the enterocytes through exocytosis and travel to the intestinal villi's lacteals to enter the lymphatic system. The chylomicrons are delivered to the circulatory system from the lymphatic system. Once in circulation, they can either be stored in fat cells (adipocytes), which make up the adipose (fat) tissue found all over the body, or they can be transported to the liver.(5)

In PRAMEH and Sthalyana 7.

The special idea of Srotas was introduced by Acharya Charak in the fifth chapter of Vimana Sthana. According to him, "Srotas are the channels which carry Dhatus undergoing transformation" (6)

According to Ayurveda, there are opiates that lower the degree of medodhatwagni (tissue metabolism), which in turn causes Jatharagni (digestive force) to make Ama, which ultimately causes sthaulya. Case of Med Dhatwagni (#7)

With the help of metabolic processes and Ayurvedic notions of Prakriti, it has been established that different diseases are linked to specific genotypes. Along with Strotas, Prakriti is a significant factor in the development of different metabolic illnesses like obesity, diabetes, etc. since the vitiation of the Medovaha srotas contributes to this.

The serum levels of cholesterol, triglycerides, low density lipoproteins, and very low-density lipoproteins were shown to be greater in the kapha dominant Prakriti patients. These lipid molecules are digested and absorbed by the small intestine and may be compared to Amarasa (undigested food substance), which is further converted into chylomicrons. Amarasa is produced as a result of a diet that is Kapha dominant, frequent eating, inactivity, and daytime sleep, and it moves throughout the body and leads to excessive fat deposition that results in stoutness.(7) The fat tissue is called medo dhatu. The element that regulates the metabolism of fat is medo dhatwagni.

Pathological manifestation results from the Medo dhatwagni or tissue fire of fat becoming weaker or stronger than usual. This causes the body's fat tissue to either increase or decrease. This then causes a variety of illnesses, many of which are the root causes of systemic diseases including hyperlipidemia, diabetes mellitus, obesity, neurological disorders, etc.

DISCUSSION- Because the carrier will be more effective, molecule movement won't be a problem. The lipid profile's elements will keep fats in transit. believing in medo-dhatwagni as a force that transforms med dhatu into the following dhatu, asthi dhatu. For the medo dhatu pachan to operate normally, Medo-Dhatwagni must be in good condition.

CONCLUSION:

Med-dhatwagni is in charge of converting Margag Dhatu, which is present in the form of total cholesterol and serum triglycerides, into ASthayi Dhatu. According to this observational study, lipoproteins in the form of LDL, HDL, and VLDL are serving as transport vehicles. Due to the fact that lipoproteins with triglycerides or total cholesterol are precursors to steroid hormones, they actively participate in the transportation of Margag Med-Dhatu into Sthayi Med-Dhatu.

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