International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2022): 7.942

An Insight on Alcoholic Steatosis and its Homoeopathic Management

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Abstract: ***Alcoholic Liver Disease is the term that encompasses the liver manifestations of alcohol overconsumption, including fatty liver, alcoholic hepatitis and chronic hepatitis with liver fibrosis or cirrhosis. Alcoholic Steatosis, is also known as Fatty Liver Disease (FLD). Many people with alcoholic liver disease experience no symptoms in the early stage of the disease. In most cases, a simple fatty liver may not cause any symptom and may not even lead to complications. However, with the fat deposits, the liver becomes prone to further health problems, in some people. With excess fat deposits, the liver may develop complications like, cirrhosis, liver failure and even liver cancer. The common and mild stage of this disease is called simple fatty liver or hepatic steatosis and the more serious and worsened one is known as steato - hepatitis. Homoeopathy is a scientific system of medicine which have very good medicines for the treatment of fatty liver. It is important to understand that homeopathy selects the right medicine on the basis of the holistic symptoms of the patient and not just the diagnostic name of the disease. Homoeopathic medicines are more specific in nature and act primarily on the disease process affecting totality of the liver.***

Keywords: Homoeopathy, alcoholic steatosis, holistic, totality

1. Introduction

Alcoholic Liver Disease is the term that encompasses the liver manifestations of alcohol overconsumption, including fatty liver, alcoholic hepatitis and chronic hepatitis with liver fibrosis or cirrhosis. Alcoholic Steatosis, is also known as Fatty Liver Disease (FLD). Drinking a large volume of alcohol can cause fatty acids to collect in the liver. Sometimes, heavy drinking over a short period, even less than a week, can cause this. There are normally no symptoms and this stage of the disease is often reversible if the individual abstains from alcohol from this point onward. It is a common condition caused by the storage of extra fat in the liver. A healthy liver contains a small amount of fat. The normal concentration of lipids in liver is around 5%. Liver is not the storage organ for fat. It becomes a problem when fat reaches 5% to 10% of liver's weight. In the normal liver, kupfer cells contain lipids in the form of droplets. In fatty liver, droplets of triacylglycerols are found in the entire cytoplasm of hepatic cells. It causes impairment in metabolic functions of liver. Fatty liver is associated with fibrotic changes and cirrhosis. (1)

Many people with alcoholic liver disease experience no symptoms in the early stage of the disease. In most cases, a simple fatty liver may not cause any symptom and may not even lead to complications. However, with the fat deposits, the liver becomes prone to further health problems, in some people. With excess fat deposits, the liver may develop complications like, cirrhosis, liver failure and even liver cancer. The common and mild stage of this disease is called simple fatty liver or hepatic steatosis and the more serious and worsened one is known as steato - hepatitis, which is less common. (2)

Fatty liver disease consists of alcoholic liver disease (ALD) and non - alcoholic fatty liver disease (NAFLD), with a subset of these groups developing alcoholic steato - hepatitis (ASH) and non - alcoholic steato - hepatitis (NASH) respectively. The increasing prevalence of obesity and diabetes and the associated metabolic syndrome is leading to an increased incidence of non alcoholic fatty liver disease. The increasing prevalence of non alcoholic fatty liver disease is particular worrying because patients appear to have a higher mortality from non–liver related and recent data have also highlighted an increased risk for cardiovascular disease. (3)

Types of Fatty Liver: There are two main types of fatty liver.

- Alcoholic Fatty Liver Disease (AFLD): This disease occur by drinking too much of alcohol. It is also known as alcoholic Liver Disease. As heavy drinking damages the liver, liver can't breakdown the fat resulting in the accumulation of fat in the liver.
- Non - alcoholic fatty liver disease (NAFLD) – The cause of this fatty liver is not known, it can be caused due to obesity, diabetes, high cholesterol or can be genetic (run into families). But this is not caused due to alcohol.
- But there is one more type that is:
  Non alcoholicsteatohepatitis (NASH) – As the fat build up enough in liver, the liver swells up. The actual cause of the disease is not known and it impairs the liver function. (4)

How much of alcohol cause liver damage; Consumption of 60 - 80g per day (about 75 - 100ml/day) for 20 years or more in men. Consumption of 20g/day (about 25ml/day) for women significantly increases the risk of liver damage. Women have double the risk of getting ALD when compared to men.

Definition

Steatosis is defined as abnormal fat accumulation within hepatocytes. Fatty liver is the collection of excessive

amounts of triglycerides and other fats inside liver cells. Drinking a large amount of alcohol, even for just a few days, can lead to a build – up of fats in the liver. This is called alcoholic steatosis.

Epidemiology

Studies in unselected heavy drinkers of alcohol suggest that 80% develop steatosis, which is the earliest and most common histo - pathological manifestation of Alcoholic liver disease. (6) Steatosis occurs in most people consuming alcohol in excess of 80g/day and can resolve within 2 - 4 weeks of abstinence. Non alcoholic fatty liver disease was more likely in the presence of obesity, hyperglycaemia, hyper - insulinaemia, hyper - glyceridaemia and systolic hypertension all features of the metabolic syndrome. (7)

Aetiology

Alcohol - induced fatty liver (steatosis) was believed to result from excessive generation ofreducing equivalents from ethanol metabolism, thereby enhancing fat accumulation. (9) Drinking too much alcohol, Obesity, Hyperlipidemia, or high levels of fat in the body, Diabetes, Rapid weight loss, Genetic inheritance, Side effects of certain medicines, Too much iron in the body, Hepatitis C (which cause inflammation in the body).

Other causes are: Causes of fat deposition in liver, Reduced removal of fat from liver, Excessive mobilization of fat, Excess calorie intake, Toxic injury to liver, Impaired synthesis of lipoproteins (10), Impaired lipoprotein synthesis, Fatty liver due to impairment in phospholipid synthesis, Decrease in the availability of (ATP) Adenine Triphosphate, Deficiency of Vitamin E is associated with fatty liver, Fatty liver progresses to cirrhosis (11), Lipotropic factors Important lipotropic factors are Choline, Betaine, Methionine and Inositol, Folic acid, Vitamin B12, Glycine and serine also serve as lipotropic factors. (12)

Risk Factors

1) **Quantity of alcohol taken**: Consumption of 60 - 80g per day (about 75 - 100ml/day) for 20 years or more in men, or 20g/day (about 25 ml/day) for women significantly increases the risk of hepatitis and fibrosis by 7 to 47%.
2) **Pattern of drinking**: Drinking outside of meal times increases up to 3 times the risk of alcoholic liver disease.
3) **Gender**: Women are twice as susceptible to alcohol – related liver disease, and may develop alcoholic liver disease with shorter durations and doses of chronic consumption.
4) **Hepatitis C infection**: A concomitant hepatitis C infection significantly accelerates the process of liver injury.
5) **Genetic factors**: Genetic factors predispose both to alcoholism and to alcoholic liver disease. Polymorphisms in the enzymes.
6) **Iron overload** (Haemochromatosis)
7) **Diet**: Malnutrition, particularly Vitamin A and E deficiencies, can worsen alcohol – induced liver damage by preventing regeneration of hepatocytes.

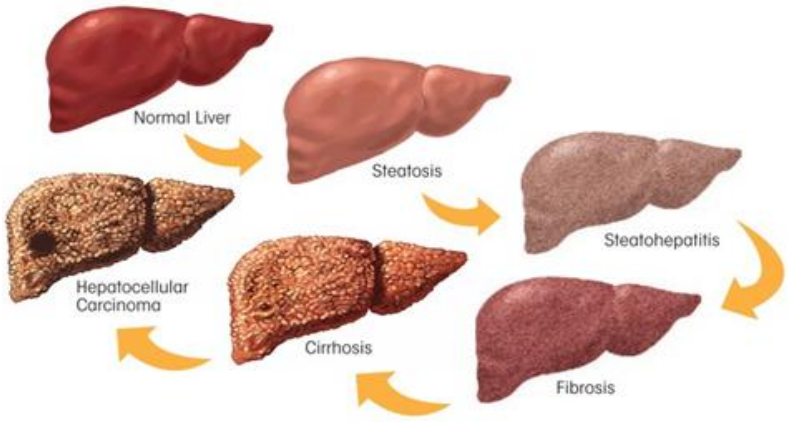
Other risk factors are**:** Being obese or having type 2 diabetes, Malnutrition, Excessive alcohol use, High cholesterol and high triglyceride level, Taking excessive dose of certain medicines, Metabolic syndrome.

Metabolism of Alcohol

80% of alcohol passes through the liver to be detoxified. Chronic consumption of alcohol results in the secretion of pro - inflammatory cytokines (TNF –alpha, Interleukin 6 (IL6) and Interleukin 8 (IL8), Oxidative stress, lipid peroxidation and acetaldehyde toxicity. Alcohol metabolism by the liver is primarily via two enzymes1. Alcohol dehydrogenase 2. Aldehyde dehydrogenase

Alcohol dehydrogenase converts alcohol into the acetaldehyde, and aldehyde dehydrogenase converts acetaldehyde into the acetate. The metabolism of alcohol increases the production of NADH (Nicotinamide adenine dinucleotide hydrogen) by reducing NAD (nicotinamide adenine dinucleotide) in the body. This shifting of metabolic balance toward the production of NADH leads to the formation of glycerol phosphate, which combines with the fatty acids and becomes triglycerides, which accumulate within the liver. when lipid oxidation (lipolysis) stops due to alcohol consumption, fats accumulate in the liver and lead to ‘’fatty liver disease’’. Continued alcohol consumption brings the immune system into play: Interleukins with the help of neutrophils attack the hepatocytes and swelling of the hepatocytes known as the ‘’alcoholic hepatitis’’ takes place. Ongoing liver injury leads to irreversible liver damage, the cirrhosis of the liver. (13)

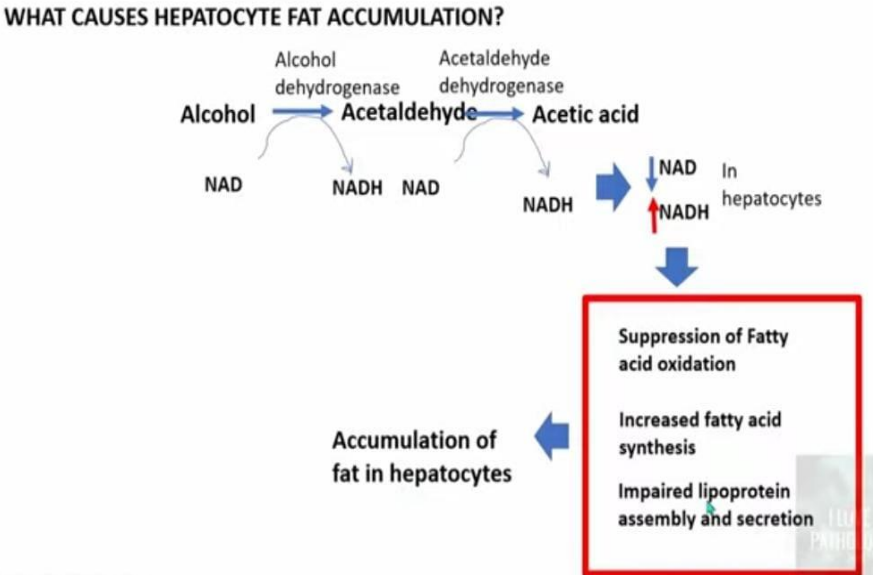
Spectrum of Alcoholic Steatosis



Spectrum of alcoholic liver disease. Heavy ethanol consumption produces a wide spectrum of hepatic lesions. Fatty liver (i.e., steatosis) is the earliest, most common response that develops in more than 90 percent of problem drinkers who consume 4 to 5 standard drinks per day. With continued drinking, alcoholic liver disease can proceed to liver inflammation (i.e., steatohepatitis), fibrosis, cirrhosis, and even liver cancer (i.e., hepatocellular carcinoma) (14)

Pathogenesis

- Alcoholism causes development of large fatty globules (macro vesicular steatosis) throughout the liver and can begin to occur after a few days of heavy drinking.
- Alcohol is metabolized by alcohol dehydrogenase (ADH) into acetaldehyde.
- Aldehyde dehydrogenase (ALDH) into acetic acid, which is finally oxidized into carbon dioxide (CO2) and water (H2O)
- A higher NADH concentration induces fatty acid synthesis while a decreased NAD level results in decreased fatty acid oxidation.
- Triglycerides accumulate, resulting in fatty liver. (15)



Alcoholic steatosis occurs in three stages:

Stage1: Steatosis (Fatty liver) is characterized by an excessive accumulation of fat inside the liver cells. Heavy drinkers usually get to the fatty liver stage in their early years of alcohol abuse.

Stage2: Alcoholic Hepatitis: is characterized by the inflammation of the liver leading to the degeneration of liver cells. Jaundice is the most common symptom in this stage.

Stage 3: Liver cirrhosis is the last and final stage of alcoholic liver disease where permanent scarring of healthy liver tissue occurs. It is a severe condition and an irreversible one. (16)

International Classification of Diseases (ICD) CODE

- **K70.0** is a billable ICD code used to specify a diagnosis of alcoholic fatty liver.
- K70 - K77 - Diseases of liver; K70 - Alcoholic liver disease

Clinical Manifestation

Symptoms vary, based on how bad the disease is. Symptoms are not present in the early stages. Symptoms tend to be worse after a period of heavy drinking. (21) Digestive symptoms include: Pain and swelling in the abdomen, Decreased appetite and weight loss, Nausea and vomiting, Fatigue, Dry mouth and increased thirst, Bleeding from enlarged veins in the walls of the lower part of the oesophagus. Skin problems such as: Yellow colour in the skin, mucous membranes or eyes (jaundice), Small, red spider –like veins on the skin, Very dark or pale skin, Redness on the feet or hands, Itching. Brain and nervous system symptoms include: Problems with thinking, memory and mood, Fainting and light headedness, Numbness in legs and feet.

Differential Diagnosis

- **Reye's syndrome**: A serious, life threatening illness in children, usually developing after a bout of flu or chicken pox and often associated with the use of aspirin. In fatal cases, there is evidence of accumulation of fat in the liver. (22)
- **Cryptogenic liver disease**: Cryptogenic cirrhosis is a condition that impairs liver function. People with this condition develop irreversible liver disease caused by scarring of the liver (cirrhosis), typically in mid - to late adulthood.
- **Fulminant Wilson Disease** is an autosomal recessive genetic disorder in which copper accumulates in tissues; this manifests as neurological or psychiatric symptoms and liver disease. It is the result of inadequate copper excretion into bile and blood, resulting in decreased serum ceruloplasmin and increased copper in the urine.
- **Ascending cholangitis**: It is also known as acute cholangitis. Is an infection of the intrahepatic and extrahepatic biliary system that occurs as a consequence of stagnant bile.
- **Liver decompensation** associated with hepatocellular carcinoma.

2. Diagnosis

LIVER FUNCTION TESTS: These are simple, inexpensive and easy to perform but cannot be used in alone to make diagnosis which include - Serum albumin levels and pro - thrombin time indicates hepatic protein synthesis. Bilirubin is a marker of whole liver function, transaminase levels indicate hepatocellular injury and death. Alkaline phosphatase levels estimate the impedance of bile flow. (23)

Imaging Tests: An ultrasound scan, CT scan or a MRI scan also be carried. Ultrasound, CT scan and MRI can be used to diagnose fatty change, cirrhosis or neoplastic diseases of the liver.

Liver Biopsy: A fine needle is inserted into body and a small sample of liver cell is taken under local anaesthesia and is examined under microscope. (24)

Endoscopy: An endoscope is a thin long flexible tube with a light and video camera at one end, this tube is passed into oesophagus and stomach and examine for varices. (25)

Complications
Portal Hypertension, Internal variceal haemorrhage, Ascites, Hepatic Encephalopathy

Prevention
Prevention consists of maintaining a well balanced diet and healthy lifestyle with moderate or no alcohol consumption. The most effective way to prevent alcoholic steatosis is to stop drinking alcohol or stick to the recommended limits. Men and women are advised not to regularly drink more than 14 units a week. A unit of alcohol is equal to about half a pint of normal strength larger or a pub measure (25ml) of spirits.

Treatment (27)

Alcohol Abstinence: Abstinenceis the most important therapeutic intervention for patients with alcoholic liver disease. Abstinence has been shown to improve the outcome and histological features of hepatic injury, to reduce portal pressure and decrease progression to cirrhosis, and to improve survival at all stages in patients with alcoholic liver disease. Less than 20% of patients will demonstrate progression of liver disease after abstinence.5year survival improves from 34% to 60% for those with decompensated liver disease. (28)

Nutritional diet: Alcoholism is associated with nutritional deficiencies. The presence of significant protein calories malnutrition is a common finding in alcoholics, as a deficiencies in a number of vitamins A, D, thiamine, folate, pyridoxine and zinc. Eat a diet that's rich in plant –based foods, including fruits, vegetables, legumes and whole grains. Limit consumption of refined carbohydrates, such as sweets, white rice, white bread, other refined grain products. Limit consumption of saturated fats, which are found in red meat and many other animal products. Avoidtrans fats, which are present in many processed snack foods. Avoid alcohol.

Drug therapy: Alcoholic hepatitis - Prednisolone: 40mg orally daily for 4 weeks; then taper the dose. Folic Acid Deficiency - Folic acid: 1mg orally twice daily in conjugation with improved dietary intake until repletion occurs. Thiamine Deficiency: Thiamine - 100mg orally or subcutaneously daily for 2 weeks or until repleted. Vitamin D Deficiency: Ergocalciferol - 12, 000 to 50, 000 International units orally daily; reassess vitamin D serum levels in 2 to 3 months. Vitamin E deficiency: Vitamin E – 400IUn orally daily. Vitamin A Deficiency: 25000 to 50000 IU orally 3 times weekly. Silymarin: Antioxidative and antifibroticproperties, believed to enhance liver regeneration and protect hepatocytes from toxicity. Recommended dose is 140 mg 2 - 3 times a day. (29)

Liver Transplantation: Livertransplantation remains the only definitive therapy. (30)

Miasmatic Approach: (33)

KEY WORD	PSORA	SYCOSIS	SYPHILIS
1. Clinical		Hepato or hepato - splenomegaly (either liver enlargement or liver and spleen enlargement)	Degeneration of the liver cells, including fatty degeneration is of syphilitic origin.
		Diarrhoea is sycotic	Dysentery is syphilitic
2. Sensation	Sore, bruised pressive pains in the abdomen.	Stitching, pulsating and wandering pains in the abdomen.	Burning, bursting and tearing sensations in abdomen.
3. Abdomen Clinical		Hepatomegaly, or splenomegaly. Tumours, papillomas and encapsulated malignant growths.	
4. Complication			Cirrhosis of the liver is syphilo - sycotic, due to Incoordination as well as degenerative changes in the liver cells. Degeneration of the livercells including fatty degeneration.

Homoeopathic Approach

Homoeopathy is a scientific system of medicine have some very good medicines for the treatment of fatty liver. It is important to understand that homeopathy selects the right medicine on the basis of the holistic symptoms of the patient and not just the diagnostic name of the disease. These medicines are more specific in nature and act primarily on the disease process affecting the liver. These are based on the totality of the symptoms of the patient and not just the name of the disease. Some of the most common Therapeutic & best using homeopathic medicines for fatty liver are:

Therapeutics (34, 35, 36)

1) **ARSENICUM ALBUM:** Post mortem examinations have revealed the fact that the liver contains more of the Arsenic in poisoning than any other organ; and it has produced fatty degeneration, jaundice, and all the lesions tending to disorganisation of this organ. In induration, atrophy, cirrhosis, softening, fatty degeneration and malignant jaundice, Arsenicum has been of untold value. (34)
2) **CHELIDONIUM MAJUS:** This is often used to treat a fatty liver accompanied by right upper abdominal pain. In such cases, the liver may be enlarged and the patient also usually suffers from constipation or experience nausea and vomiting. The patient will also probably suffer from excessive weakness and have a desire for hot food and drinks. This is the grand center for the action of Chelidonium. Through the pneumogastric nerve, it produces congestion and active inflammation of the liver, as shown by acute pain and tenderness, with pain under the right scapula; soft, bilious stools; deeply tinged urine; jaundice, with nausea and bitter vomiting. Arrest of secretory function from over - stimulation or obstruction of hepatic ducts, with white stools, or brown and watery, with jaundice; urine brown or yellow and loaded with bile. Jaundice, congestion and inflammation of the liver are certainly caused by this remedy; and it has made many brilliant cures of jaundice in acute and chronic hepatitis; jaundice from catarrh of the biliary ducts; jaundice from gall stones and jaundice complicated with pneumonia. Several cases of biliary calculi have been cured with large doses of Chelidonium. All goes to show that it is one of our most prominent hepatic remedies
3) **LEPTANDRA VIRGINICA:** Through the filaments of the solar plexus, Leptandra greatly arouses the secretory action of the liver, increasing the solid and decreasing the fluid constituents of its secretion. King says of Leptandra: ‘’It is a cholagogue, causing the liver to act with great energy and without active catharsis and is employed with success in all hepatic affections. It is indicated by an inactive state of the liver and all functional eases of that organ, it is the only known remedy which efficiently stimulates and corrects the hepatic secretions and removes functional derangements of the liver, without debilitating the system by copious alvine evacuations’’. It has a powerful action upon the liver. Dull aching pain in lower part of right hypochondriac region.
4) **PHOSPHORUS**: This is used to treat cases of fatty acid which triggers regurgitation accompanied by sour belching. In some cases, the patient may also experience pain in the liver and excessive flatulence. Vomiting may also occur along with weakness while passing stool. long narrow stools – can be pale – a highly - strung patient – pale (hint of yellow) skin. The liver is really the greatest special centre of secretion for phosphorus. The first twenty four hours the gastric symptoms predominate and then almost always there comes on a comparatively healthy condition which may last two or three days or even longer. Then the severe symptoms begin, usually with jaundice, which increase more or less rapidly until it reaches the highest degree of intensity; with this comesurticaria, which generally accompanies severe jaundice. At this time enlargement of liver can usually be detected by palpation and percussion; and this organ continues to increase while the patient is under observation.
5) **Lycopodium:** A fatty liver accompanied by acidity can be treated with this type of homoeopathic medication. In such cases, the patient will also complain of bloating and belching with a burning sensation. These symptoms tend to worsen in the evening and the patient may have an intense craving for sweets and hot drinks.
6) **Nux Vomica:** Homeopathic remedy for fatty liver with pain in abdomen after eating. Nux vomica is great for any abdominal problem including fatty liver caused by excessive consumption of alcohol. These patients often suffer from abdominal pain a few hours after eating with sour or bitter tasting belches. They may constantly feel the urge to pass stool but are unable to do so. urge to move bowels, which passes off – chilly – irritable “leave me alone.
7) **LACHESIS**: Most often regarded as a left sided remedy, it is often indicated in portal congestion – shown by a sensation of feeling terrible on waking or after nodding off during the day. This is due to venous congestion that affects the liver circulation on lying down for any length of time. Quite often it is needed if other remedies fail to work.
8) **SULPHUR**: Persons are often big eaters and drinkers. Liver problems can be of alcoholic origin. When treated with homeopathic Sulphur they can become less warm - bodied, less loose - bowelled and often constipated.
9) **CARDUS MARIANUS** - is an excellent remedy for liver disease. It is indicated in alcoholics who crave beer. It is also indicated for poor appetite with nausea and vomiting of green acid bile. Bitter taste in mouth. A feeling of fullness and soreness along with pain in liver region, Jaundice and cirrhosis. Hard difficult, clay coloured stool alternating with diarrhoea.
10) **BRYONIA ALBA:** is well suited for soreness in liver region. Stitching, burning pain in abdomen, which worsens with pressure, coughing and sneezing. Nausea and regurgitation of food after eating. Vomiting of bile and water after eating, yellow, dark brown or white coating on tongue. Extreme dryness of skin, lips, mouth.

Rubrics: Synthesis Repertory: (37)

Fatty degeneration of liver: Calc –f, chel, germ - met, kali - s, lac - d, Lyc, lyss, mang, mang - act, Merc, Phos, pic ac, vanadium.

Rubrics related to alcoholism in synthesis repertory

- MIND – ALCOHOLISM

- MIND – AILMENTS FROM – ALCOHOLISM
- MIND – DIPSOMANIA
- GENERALS –FAMILY HISTORY OF - ALCOHOLISM
- GENERALS –ALCOHOLIC STIMULANTS –AGG – INTOXICATED EASILY
- GENERALS – FOOD AND DRINKS – ALCOHOLIC DRINKS – AILMENTS FROM
- GENERALS – FOOD AND DRINKS – ALCOHOLIC DRINKS – AVERSION
- GENERALS – FOOD AND DRINKS – ALCOHOLIC DRINKS – DESIRE
- STOMACH – ALCOHOLIC DRINKS – AMEL

3. Conclusion

Homoeopathic medicine holds significant role in treatment of Fatty liver. Dr. Hahnemann laid enormous emphasis on whole body involvement in disease, Lifestyle changes and dietary modifications whichare the first line management of fatty liver & Homoeopathy medicines offers time proven, effective and safe remedial measures. In the light of present review it can be concluded that Homoeopathy is very proficient in managing all the symptoms of alcoholicsteatosis (Fatty liver disease) and further more plays a vital role in preventing relapse of the fatty liver.

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