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Clinical utility of homoeopathic medicine in treating non-alcoholic fatty liver disease by using bard score

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Abstract

Currently known as metabolic dysfunction-associated steatotic liver disease (MASLD), non-alcoholic fatty liver disease (NAFLD) is the accumulation of excess fat in hepatic cells which is not caused due to the alcohol. A certain amount of fat is typical in the liver. A fatty liver, on the other hand, is defined as having more than 5–10% fat in its weight (steatosis). NAFLD's more severe variant is nonalcoholic steatohepatitis (NASH), which is currently known as steatohepatitis linked to metabolic dysfunction. The liver swells and are destroyed due to NASH. Alcohol drinking to an excessive degree is not the cause of this fat accumulation. So, the sole aim of the homoeopathy is to treat all the sign and symptoms of NAFLD by proper case taking, regularly managing the diet and life style of the patients and lastly by prescribing individualized homoeopathic medicines in proper doses and repetition without causing any harm to other organs.

Keywords: Fatty liver, Non - alcoholic, BARD SCORE, Life - style, Homoeopathy

Introduction

Globally, one of the most frequent causes of chronic liver disease is non-alcoholic fatty liver disease (NAFLD). When no other factors, such as excessive alcohol intake, are shown to be the cause of secondary hepatic fat buildup, hepatic steatosis is the hallmark of nonalcoholic fatty liver disease (NAFLD) ^[1]. NAFLD spans from non-alcoholic fatty liver (NAFL), a more benign illness, to non-alcoholic steatohepatitis (NASH), a more serious disorder. NAFLD may develop into cirrhosis and fibrosis.

Prior to the middle of the last decade, NASH was generally regarded as a serious condition that mostly affected obese females, was almost exclusively associated with Type 2 Diabetes Mellitus (T2DM), and had a relatively good prognosis ^[2]. T2DM is a predictive risk factor for diabetes, cardiovascular disease, and stroke. With a 25% global prevalence, the incidence of nonalcoholic fatty liver disease (NAFLD) has increased quickly in industrialized nations. In developed nations, nonalcoholic fatty liver disease (NAFLD) is becoming more prevalent as a chronic liver disease, especially in those with central obesity, type 2 diabetes, dyslipidemia, and metabolic syndrome.

As per the US recommendations for NAFLD care, NAFLD is defined as steatosis with a fat infiltration of $\geq 5\%$ in imaging or histology, and without any steatosis generated by alcohol, drugs, or viruses ^[3]. Elevated liver enzymes can be seen in NAFLD patients. Several metabolic syndrome (MS) characteristics, such as systemic hypertension, dyslipidemia, insulin resistance, or overt diabetes, are seen in patients with non-alcoholic fatty liver disease. There is mounting evidence linking visceral obesity to NAFLD, and it is important to remember that multiple sclerosis is a known risk factor for the development of heart disease.

Even a skilled physician may find it difficult to evaluate aberrant liver enzyme levels in a patient who is otherwise in good condition. When liver test findings in blood donors are abnormal, NAFLD is the main reason. In up to 90% of instances, it detects asymptomatic elevations in alanine aminotransferase (ALT) and aspartate aminotransferase (AST) levels after excluding other causes of liver illness ^[4]. Globally, obesity affects 15% of women and 11% of men over the age of 18, according to data from the World Health Organization's Global Health Observatory in 2014. The pathogenesis of non-alcoholic fatty liver disease, risk factors, diagnostic procedures, and conservative and pharmaceutical treatment methods are all summarized in this study ^[5]

Epidemiology

The prevalence of non-alcoholic fatty liver disease is rising quickly, particularly in Western nations. Some of the most important causes include rise in obesity, increase in childhood obesity, sedentary lifestyles, the consumption of excess fast food, and longer life spans.

All racial and ethnic groups can have NAFLD, but Hispanics are the most likely to have it, followed by non-Hispanic whites and Asian Americans, especially those with East Asian and South Asian ancestry [6]. NAFLD is less prevalent in Black non-Hispanic people. Compared to non-Hispanic whites with NAFLD, Asian Americans with NAFLD typically have lower BMIs.

Due to the widespread use of ultrasonography to screen for fatty liver disease, the incidence and prevalence of NAFLD remain underestimated. Obese adults have an 80% to 90% prevalence of NAFLD; patients with diabetes mellitus have a 30% to 50% prevalence [7]; patients with hyperlipidemia have an 80% or higher prevalence; children have a 3 to 10% prevalence; and children who are obese have a 40% to 70% prevalence.

Pathophysiology of NAFLD

The process by which NASH develops is intricate and poorly understood. Many studies on animals have been carried out recently to study the basic pathophysiology of NAFLD and NASH. These studies mostly focus on the differences in dietary models, such as high fructose, high fat, or methionine/choline deficient diets (MCD).

It has been proposed that the development of NASH is a two-step process based on this evidence. The hepatic deposition of fat, which will exacerbate insulin resistance, is the initial stage of this process [8]. The oxidative stress and fatty acid oxidation in the liver is caused by multiple factors (cytokine injury, hyper-insulinemia, iron stored in hepatocytes and/or lipid peroxidation, extracellular matrix variation, energy homeostasis, and immune system change) comprise the second part of this process. Insulin resistance develops over a complex course [9]. Insulin resistance is largely developed as a result of increased fat mass and adipocyte differentiation in the context of MS, as is the case for many patients with NASH.

NAFLD is present in two distinct types. The current hypotheses indicate that insulin resistance is the primary pathophysiological mechanism, and there is a weak association between the first kind of NAFLD and metabolic syndrome [10]. The second form of non-alcoholic fatty liver disease is associated with infectious illnesses that may result in liver steatosis. Infections such as HIV and hepatitis C may be the cause in this instance, but it is also linked to certain toxins, inherited/acquired metabolic diseases, and medications (tamoxifen, tetracycline, amiodaron, methotrexate, valproic acid, lipodystrophy, cachexia, intestinal bypass surgery, etc.)

Histologic findings

Fat buildup is the histological hallmark of fatty liver, and it is main noticeable in the pericentral (centrilobular) zone. The norm is macrovesicular steatosis, in which the nucleus of hepatocytes have one or more massive fat droplets is displaced to an eccentric position [11]. Periodically occurring fat leakage from ruptured inflated hepatocytes might result in a modest localized inflammatory response (lipogranulomas), which are primarily made up of

macrophages and occasionally lymphocytes.

However, fibrosis around terminal venules (Perivenular fibrosis) or hepatocytes (Pericellular fibrosis) has been reported on occasion [12]. Despite the fact that inflammatory cell infiltration of the liver is usually not visible in individuals with steatosis alone. Early changes observed under an electron microscope include the accumulation of fat droplets that are membrane-bound, the expansion of the smooth endoplasmic reticulum, and the increasing deformation of the mitochondria. There is also an increasing recognition of microvesicular steatosis.

When NAFLD or NASH is present, specific histologic findings contain the following

- Usually macrovesicular, however it can also be mixed or microvesicular.
- Ballooning degeneration .
- Mixed neutrophilic and mononuclear cells comprise inflammatory infiltrates that typically lack portal infiltrates (unlike hepatitis C).
- Fibrosis.

Based on a scale that ranges from 0 to 8, the first three findings are used to construct the NAFLD activity score. Based on the quantity of fibrosis present and the NAFLD activity score, the disease stage is identified.

Stages of non-alcoholic fatty liver disease

NAFLD occurs in four main stages

The majority of people will only reach the initial stage, most of the time without realizing it. If left untreated, it may worsen in a tiny percentage of patients and potentially cause liver damage. The main stages of NAFLD are.

1. **Simple Fatty Liver (Steatosis):** It is mainly found in whole population and only tests performed for another purpose will be able to diagnose this benign accumulation of fat in the liver cells.
2. **Non-Alcoholic Steatohepatitis (NASH):** It is a more severe type of NAFLD in which there is mild hepatocyte destruction along with inflammation of the liver. Up to 5% of the population is thought to be impacted by this.
3. **Fibrosis:** The liver can still function correctly at this stage, but there is ongoing inflammation that is causing scar tissue to form around the liver and surrounding blood vessels.
4. **Cirrhosis:** This is the worst stage, which develops after years of inflammation and causes the liver to shrink, get lumpy, and become scarred. The damage is irreversible and can cause liver failure, which in turn can cause cancer.

Causes of NAFLD

It's exactly not clear what causes nonalcoholic fatty liver disease. According to current studies, the digestive system, nutrition, DNA, and specific medical disorders may all be important factors [13]. Certain lifestyle factors have the potential to raise the chance of getting the signs of non-alcoholic fatty liver disease, even if some persons who receive the diagnosis have no prior risk factors. These are:

- Being overweight
- Pre-diabetic
- Type 2 diabetes.

- Increased cholesterol diet
- Sedentary life-style
- High cardiac output.

Risk factors

Other risk factors are

- Increased triglyceride levels.
- Increased cholesterol.
- A diet rich in fructose.
- Disruption in microbiome (gut).
- Gastric by-pass surgery.
- Bowel diseases.
- Certain medicines, such as pain killers and certain skin medication.
- NAFLD also occurs in those patients who have no known risk factors.

Symptoms of NAFLD

In many cases of NAFLD often there are no sign and symptoms. When symptoms occur, the most common symptoms are.

- Pain in the upper right side of the abdomen (Right hypocondrium).
- Fatigue feeling.
- Weight loss.
- Fluid and distension in the stomach (ascites) and legs (edema).
- Presence of jaundice.

If NAFLD is suspected in some patients, there may be other symptoms like signs of insulin resistance ^[14] (Dark discoloration over your knees, knuckles, and elbows), and signs of cirrhosis (Ascites or muscle loss).

Diagnosis of NAFLD

NAFLD usually has no prominent symptoms. The condition is typically diagnosed only after a blood test which shows higher than normal levels of liver enzymes. The following tests are used to measure liver function:

- Complete blood count.
- Liver function test (LFT).
- Prothrombin time.
- Blood albumin level.
- Serum transaminases.

Imaging tests, includes

- Ultrasound confirms the diagnosis of NAFLD.
- MRI and CT scan.
- Fibroscan (Transient elastography - measures the liver’s stiffness. Greater the stiffness s greater is the scarring)
- A liver biopsy is needed to confirm a diagnosis of NASH ^[15], the more severe form of NAFLD.

Biomarker analysis

When compared to patients with simple steatosis, the inflammatory biomarkers IL-1 β , IL-6, IL-8, IL-10, and TNF α are mainly increased in NAFLD/NASH patients ^[16]. Additionally, patients with simple steatosis had much higher levels of TNF α . Nevertheless, there is no statistically significant difference in TNF α levels between patients with simple steatosis and those with NAFLD/NASH, indicating that TNF α could be an acute case biomarker that is raised in the early stages of fatty liver disease.

Liver fibrosis biomarkers PIIINP and ST2/IL-33R are primarily high in NAFLD and ALD patients, indicating that these biomarkers identify fibrosis and late-stage liver disease. Nonetheless, the distribution of the serum ST2/IL-33R values seen in the patients with ALD and NAFLD/NASH is noteworthy. The NAFLD patients and the ALD patients did not significantly differ from one another ^[17]. Sadly, as we do not recommend tissue biopsy, we were unable to establish a correlation between the tissue’s fibrotic state and serum ST2/IL-33R levels. Nonetheless, we might speculate that the distribution of serum ST2/IL-33R levels among patients with NAFLD may be connected to the severity and stage of their liver disease. This theory would need to be confirmed, meanwhile, in NAFLD/NASH patients where a pathologically verified sample of blood and tissue biopsy was available for each patient.

Table 1: Simple non-invasive tests for fibrosis

S. No.	Score	Indices	Calculation
1.	BARD score	BMI, AST/ALT ratio, T ₂ DM	Weighted sum: 1. BMI $\geq 28 = 1$ point 2. AAR $\geq 0.8 = 2$ points 3. T ₂ DM = 1 point
2.	NAFLD fibrosis score	Age, Hyperglycaemia, BMI Platelet count, Albumin AST/ALT ratio	$1.675 + 0.037 \times \text{age (years)} + 0.094 \times \text{BMI (kg/m}^2\text{)} + 1.13 \times \text{IFG or diabetes (yes=1, no=0)} + 0.99 \times \text{AST/ALT ratio} - 0.013 \times \text{platelet (} \times 109/\text{L)} - 0.66 \times \text{albumin (g/dL)}$
3.	FIB-4 score	Age, AST, ALT	$\text{Age} \times \text{AST (IU/L)} / \text{platelet count (} \times 109/\text{L)} \times \sqrt{\text{ALT (IU/L)}}$

AAR- Aminotransferase ratio, IFG- Impaired fasting glucose

Efficacy of bard score over other scores

The BARD score is made up of three variables: the presence of diabetes -1 point; the AST/ALT ratio $\geq 0.8 - 2$ points; and a BMI $\geq 28 - 1$ point. ¹⁸ The possible score ranges from 0 to 4 points. Harrison *et al.*'s results indicate that BARD scores equal to 0 or 1 have a high (96%) negative predictive value (NPV) for advanced fibrosis. The variables required for laboratory analysis (fasting plasma glucose, AST, ALT, platelet count, and serum albumin) and the variables necessary for score assessment (age, BMI) were determined the day before the liver biopsy. It is non - invasive method to assess the fibrosis. This score is quite easy, simple and officious in calculating the stage of NAFLD.

Treatment

There is no specific treatment for NAFLD. The primary goal is to manage the risk factors and other health conditions. Proper diet and healthy life style can help to repair the liver. These may include:

- By losing weight
- Eating a healthy diet with low salt.
- Avoiding intake of alcohol.
- Be physically active.
- Manage other health conditions such as diabetes and high blood pressure.
- Get vaccine for diseases such as hepatitis A and hepatitis B.
- Focus to lower the cholesterol and triglyceride levels.

- By taking all medications as directed by the physician.

Losing weight and managing diabetes can slow or sometimes reverse the deposit of fat in the liver.

Managing NAFLD by life style modification

- It is feasible for individuals to reduce liver fat and inflammation by weight loss and/or lifestyle modifications.
- Keeping a healthy diet as well as include various physical activity.
- The quantity of liver fat and inflammation are more likely to decrease if you shed 10% of your present body weight ^[19]. Aim for 1-3 pounds of weight loss per week when losing weight; too much weight too quickly can exacerbate liver illness.
- Intake Vitamin E helps to reduce liver inflammation.
- Correcting other metabolic diseases such as diabetes, high blood pressure and high cholesterol can also reduce chances NAFLD.
- Avoiding alcohol intake.
- Consuming coffee helps to reduce the risk of fatty liver.
- Increasing the intake of green leafy vegetables would strengthen the body's defenses against illness ^[20]. In essence, polyphenols and nitrate content work well for this. Carrots, spinach, and cruciferous vegetables (Such as bokchoy, kale, cabbage, and broccoli) are excellent sources of dietary fiber for the liver.
- Increase the consumption of plant proteins like Soya beans, lentils, legumes, chickpeas, etc. They are effective in boosting gut health and will take care of protein requirements.
- Fibre and nutrient-rich oatmeal helps to improve health, help in reducing triglycerides, and enhance the condition of the liver.
- Nuts like walnuts, almonds and seeds like Sunflower seeds, pumpkin seeds etc. offer diverse benefits and lowering the risks of fatty liver.
- Eating foods high in saturated fatty acids, such as fishes with excess fat, nut butter, and olive oil, will help lower total cholesterol and lessen the risk of fatty liver problems ^[21]. Garlic is also recommended for decreasing excess weight and body fat.
- Intermittent fasting is an excellent strategy for reversing fatty liver, especially in patients with Insulin resistance.
- Reduce excessive consumption of sweet fruits and juices ^[22]. Fructose in them can easily get stored in the liver as fat.

In addition, foods which should be avoided in fatty liver

- Alcohol.
- Added sugar- high fructose corn syrup.
- Carbonated beverages.
- Oily and Fried food items.
- Red meat.
- Too much salt.
- Refined carbohydrates like Bread, pasta, cake, pizza, cookies etc.

Prognosis

NASH may not develop in many NAFLD patients, and they frequently experience no health problems in their later years. Healthy lifestyle choices and weight loss can help

avert all major issues.

Prevention

To prevent the NAFLD we should follow the given rules:

- Maintain a healthy weight.
- Take a healthy diet.
- Do exercise and yoga regularly.
- Limit the alcohol consumption.
- Use every medication properly.

Efficacy of homoeopathic treatment

Treating the underlying cause of illness is the goal of homeopathy, which is the healthiest method of treating disease. Allopathic medication treats their illness at the same time that it heals the organ damage. With the use of homeopathic medications and the adoption of healthful daily habits, homoeopathy can treat non-alcoholic fatty liver illness ^[23].

The name implies that fat buildup in liver cells is the cause of the illness. Non-alcoholic steatohepatitis is acknowledged as a serious condition that might cause irreversible liver damage. If treatment is delayed, the damage could progress to liver failure and cirrhosis, and it is comparable to alcohol-induced liver damage ^[24]. With homeopathic liver treatment, however, we can appropriately reduce the danger and symptoms of liver disease.

A useful strategy for reducing or even avoiding the risk of liver disease is homeopathy. We provide homeopathic treatment, which is free of drug side effects and does not damage the liver like allopathic treatment does. Allopathic therapy may help patients treat their liver disorders more quickly, but it also damages other bodily components, which many individuals overlook when seeking treatment. The safest and most efficient method of treating any illness is homeopathy, and the drugs it recommends to its patients have no negative effects on other body systems.

Homeopathy medicines for fatty liver

Excellent homeopathic medications are available to treat fatty liver. Following a comprehensive assessment of their symptoms, patients are offered homeopathic remedies, which are composed of natural substances ^[25]. Homeopathy is a highly recognized holistic medicinal method. Based on symptom commonality and individualization, the holistic method is employed to determine a solution. The use of homeopathy is crucial in preventing relapses and is highly successful in treating all of the symptoms associated with fatty liver disease. Best Homeopathic Medicine are:-

1. **Chelidonium**: It is the most effective and natural medicine for fatty liver disease. The most common side effects of this medication include pain in the right upper abdomen and soreness under the right shoulder. There could also be liver enlargement. Constipation is common in this person. The stool takes the shape of hard balls as it travels through ^[26]. There is also a swollen abdomen, as well as nausea and vomiting. The excessive weakness affects the sufferer. *Chelidonium* is the best treatment for jaundice in a patient with Fatty Liver. The craving for really hot drinks and meals is a common symptom that adds weight to the decision to take this treatment.
2. **Lycopodium**: It is a natural medication that can help with fatty liver symptoms like gas and acidity. After consuming something, the patient experiences

abdominal distension or bloating. The stomach feels bloated. Burning belching is also a common symptom [27]. Even a small amount of food causes abdominal fullness. In the right hypocondrium, the patient feels heaviness and pain. In most cases, the symptoms worsen in the evening. Farinaceous food aggravates the person's condition. You may have an unusually strong desire for sweets and hot beverages.

3. **Phosphorus:** It is one of the greatest homeopathic remedies for the fatty liver when there is increased thirst along with other symptoms. Warm water is intolerable to the sufferer, and as soon as it get warm in the stomach, it is vomited out. Typically, the patient is tall and thin. In the stomach, there is a faint and empty sensation. Lying on the left side exacerbates the discomfort.
4. **Calcarea carb:** It is a natural treatment that is very effective for obese Fatty Liver sufferers. The individual is chubby and flabby, with extra fat in the liver and entire abdomen. This therapy is effective in removing extra fat from the liver. In people who have been constipated for a long time, digestion is particularly slow. The stomach is usually bloated. These people should not drink milk. A yearning for boiled eggs or unusual things like chalk and pencils are among the noted constitutional symptoms. Another symptom is cold sensitivity and heavy sweating on the head.
5. **Nux vomica:** It is the best natural medicine for the treatment of fatty liver when the cause is over-consumption of alcohol. It's used to treat pain in the abdomen that starts a few hours after eating and feels like a stone in the stomach [28]. The pain is accompanied by sour or bitter belching. Constipation with an ineffective urge to pass stool or poop is an important symptom of choosing *Nux vomica* for Fatty Liver. The stool, on the other hand, is inadequate and unsatisfying. The passage of feces relieves abdominal pain, but they need to pass stool returns soon after. The patient craves fatty foods, spicy foods, coffee, and alcoholic beverages in his diet.
6. **Digitalis:** It may be the treatment of choice for jaundice resulting from heart conditions. The liver is not extracting the components needed to make bile from the blood, which is why there is jaundice rather than bile retention or duct blockage. Drowsiness, a bitter taste, discomfort, enlargement, and a bruised feeling are all present in the liver region.
7. **Myrica cerifera:** It is a crucial liver supplement. When compared to Digitalis, the reason for the initial dejection and jaundice is the liver's poor bile production rather than any blockage. A dull headache that becomes worse in the morning, filthy, yellowish eyes, and yellow tongue coating.
8. **Taraxacum:** The signs and symptoms of this specific liver treatment include bilious diarrhea, a swollen tongue, a bitter taste in the mouth, and chilliness after eating. There is a mapped language for *Kali bichromicum* too. The symptoms of *Yucca filamentosa* include a terrible taste in the mouth and pain that radiates from the upper part of the liver to the back. A lot of flatus is seen along with loose, bilious stools.

Important mother tinctures for fatty liver treatment

- *Bryonia alba*

Patients right hypocondriac region is swollen, sore, tensive. Burning pain, stitches; worse pressure, coughing, breathing. Inflammation of the liver. Pains in the live, mostly shooting, tensive or burning. Tractive pains in the hypocondrium, extending to the stomach and the back, in the morning and after dinne, sometimes with vomiting.

- ***Chelidonium majus***

A prominent liver remedy, which present the jaundice due to hepatic and gall bladder obstruction. Liver enlarged. Stitches in liver and spleen [29]. Shooting stitching through liver to back, crampy pain inner angle of scapula. Right (and left) hypocondrium and scrobiculus cordis is painful on pressure. Constant pain under the lower and inner angle of right scapula. Hepatic diseases; jaundice, pain in right shoulder.

- ***Carduus marianus***

This medication primarily affects the liver and portal system, resulting in discomfort, soreness, and jaundice. bleeding, particularly in relation to hepatic illness. diseases related to pelvic congestion and liver disease [30]. enlarged liver along with gallstone disease. discomfort in the liver area. extremely sensitive left lobe. hepatic hyperemia accompanied by jaundice. Lying on one's left side causes pressure, tension, and liver sutures. Compression respiratory embarrassment and coughing up thick expectoration are the causes of the swelling, sensitivity, and induration in the left lobe of the liver. Hemoptysis is a liver condition that affects the lungs.

- ***Ceanothus americanus***

It suits to anemic patients where liver and spleen are at fault. Pain in liver and back. Immediately after dinner, dull pain in region of liver. Full feeling in region of liver. Pain in liver worse lying on right side.

- ***Chelone glabra***

A remedy in liver affections with pain or soreness of the left lobe of the liver and extending downwards. Dyspepsia with hepatic torpor. Jaundice. Pain or soreness of the left lobe of the liver and extending downwards [31]. *Chelone* acts in a line between the hilus of the liver and fundus of the uterus. Debility from loss of tone of digestive organs or liver or from exhausting diseases.

- ***China officinalis***

In it there is pain right hypocondrium. Liver and spleen swollen and enlarged. Jaundice. Shooting and pressive pains in the hepatic region, especially when is touched. Hardness and swelling of the liver.

- ***Chionanthus virginica***

A prominent liver remedy. Sore; enlarged liver, jaundice and constipation. Hepatic region tender jaundice with arrest of menses [32]. Uneasy sore feeling in region of right hypocondrium, extending to left iliac region. Uneasy sensations in region of spleen and liver. Obstructions of liver in malarious districts. Soreness in region of liver, quick weak pulse, stools undigested and showing entire absence of bile, urine almost black. Chronic cases of jaundice. Jaundice recurring every summer.

- ***Podophyllum peltatum***

It is particularly suitable for people with a bilious temperament. The duodenum, small intestines, liver, and rectum are the main organs affected. Liver torpidity; portal engorgement with hemorrhage propensity; hypogastric discomfort; superficial vein fullness; jaundice. Painful area of the liver, better massaging portion^[33]. Fulness in right hypochondrium, with flatulence, pain and soreness. Right hypochondrium twisting and burning. In hypochondria, the discomfort gets worse upon eating. High liver irritation and excessive bile secretion. Hepatitis causing discomfort, sensitivity, and costiveness in the liver region.

Conclusion

One of the most widely used holistic medical approaches is homeopathy. Using a holistic approach, the notion of individualization and symptom similarity are used to guide the remedy selection. This is the only method for eliminating all signs and symptoms that the patient is experiencing in order to restore their condition of total health³⁴. In addition to treating the symptoms of fatty liver, homeopathy aims to address the underlying cause and individual vulnerability of the condition. Regarding therapeutic treatment, there are a number of options accessible to treat the symptoms of fatty liver. These options can be chosen based on the etiology, symptoms, and complaints' modes.

Conflict of Interest

Not available

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Not available

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