

A Concept to Treatment of Hepatitis Virus by Herbal Remedies

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Abstract

In present scenario the medicine system from the west has started acknowledging the importance and wisdom of ancient medicine systems like Ayurveda and Siddha. There are many diseases which remain incurable till date, so in order to find probable cure now a shift in paradigm is really important. One such incurable disease is the Hepatitis (A, B, C, D, E) disease which affects the liver adversely. Liver is one of the major organs of the body and it is involved in various life sustaining functions like emulsion of fats during digestion, production of various activating enzymes and it is also functional in aiding the production of various blood proteins. Amongst all the diseases, Hepatitis is one of the most fatal diseases of the liver. Hepatitis is caused by the family of hepatitis virus and these viruses are of different kind, hence produce different type of disease in the body. Hepatitis is majorly of 5 types: Hepatitis A, B, C, D and E. General symptoms of hepatitis include jaundice, intense abdominal pain, yellowing of eyes and skin, nausea, extreme tiredness and dark urine. This paper aims at discussing the details about the hepatitis virus. It also describes the main disease of this spectrum that are, Hepatitis A, Hepatitis B and the Hepatitis C. This paper also discusses the Ayurvedic medicines like triphala, giloy, neem and kalmegha etc. that can be helpful in curing this infection and their properties are discussed as well.

Keywords: incurable, Hepatitis, Ayurvedic medicine, Jaundice

INTRODUCTION

Ayurveda is one of the oldest medicine systems that exists in the world. Ayurveda is a science which deals with the herbal and natural ways of curing ailments in order to support healthy lifestyle. The word 'ayurveda' is derived from Sanskrit words 'ayu' meaning 'life' and 'veda' meaning 'knowledge'. Ayurvedic medicine system only uses plants and their products to formulate any kind of medicine. Moreover being all natural in composition these medicines do not have any side effects attached to them. Through Ayurveda many diseases have been cured like diabetes, memory loss, arthritis, hepatitis and many more. Ayurveda functions with a holistic view of the human body where the body and the mind should possess a balanced inter-relationship to ensure an overall healthy human body. It can also be called holistic in the sense that not only physical health, Ayurveda also comprises of psychological, ethical, philosophical and spiritual health. The main classic literatures that explain Ayurveda are Charaka Samhita, Sushruta Samhita and Ashtanga Hridaya. They provide with the knowledge and detailed description of more than 700 herbs and 6,000 formulations. Also a classic diagnostic literature Madhava Nidan which dates back to 800 AD contains more than 5000 signs and symptoms of various diseases. Such literatures also signify the basis of Ayurveda that is the union of the body, senses, mind and the spirit.

Ayurveda is so commonly used all over the world that many times people use them as home remedies that have been taught to them throughout their generations. This is so because Ayurveda also provides with the personalized medications or person centered medicine (PCM) that is used not only to cure diseases but also to prevent from such diseases, ensure healthy lifestyle and also promotes health sustaining habits in an individual. According to Ayurveda every human is made up of five elements of the nature that is – earth, water, air, fire and ether or space. It

also emphasizes that every human body type can be categorized into three doshas – Vata (air/ether/space), Pitta (fire) and Kapha (water/earth), there exists a combination of these three in every person. The air/ether/space elements of the body regulate the mental mobility, the fire element regulates the digestive capabilities and also assimilation of the digested food and the water/earth elements regulate the body weight, stability and cohesiveness in human body. According to Ayurveda the human body should have a balance of all the three doshas – Vata, Pitta and Kapha, in order to prevent any disease and also to cure them if they already persist in the body. In Ayurveda the constitution is called 'prakriti' that shows a unique relationship of human physiology with the psychology. The main constituents of prakriti are the life forces called as doshas. These doshas control the major activities of the body. Hence if any of the doshas are imbalanced then the body is prone to get affected by any harmful infection that could lead to an unhealthy body. Therefore in order to sustain a healthy life, there should exist a well balanced dosha, a strong physical and mental self and overall healthy lifestyle factors which includes yoga, meditation etc. It can be said that Ayurveda focuses on strong and healthy body with good immune system that prevents any chance of being affected by a disease. Even the modern day innovative approach of medicine shows similarity to Ayurveda since they have adopted the Predictive, Preventive and Personal Medicine (PPPM) approach to treat any ailment.

The human body is the most complex and advanced system created by nature. In the body the biggest and most important gland is the liver. Liver is also not only the biggest gland but it is also the biggest and the most crucial organ in the body. The liver performs various functions that are extremely crucial for life to sustain. Some of the functions performed by the liver are as follows:

- The primary function of liver is to facilitate digestion by producing the bile juice that is particularly helpful in breakdown of fats. It also produces various enzyme activators.
- Liver helps in maintaining glucose level in the body by converting excess glucose into glycogen. The glycogen along with various vitamins and minerals is then stored in the liver.
- Liver is helpful in regulating blood iron levels and also regulates presence of various proteins in the blood.
- Liver helps in conversion of harmful ammonia into urea and then facilitates the excretory system for removal of this urea from the body.
- Liver is also a facilitator of production of prothrombin complexes which help in clotting of blood during the time of injury.
- Liver is also primarily involved in blood purification and detoxification.

Hence it can be clearly seen that there is no system in the body which does not interact with the liver. This makes the liver the most important organ of the body. It is therefore regarded as the mother of all the glands because of production of various activating factors from it. Since the liver is exposed to so many activities within the body, it makes the liver more vulnerable to infections and injuries as well. There are vast numbers of ailments and complications related to liver that either happens due to infection, for example: hepatitis, jaundice etc. or certain lifestyle related complications like liver cirrhosis that happens due to excessive drinking. Hepatitis is an ailment that happens in the liver and it is marked by swelling or inflammation in the liver. Hepatitis is caused by the Hepatitis virus and this disease could be of 3 types: Hepatitis A, Hepatitis B, and Hepatitis C, D & E.

Hepatitis Virus

The various types of hepatitis disease are caused by the family of hepatitis virus. These viruses are different in structure and produce different harmful effect in the body. The types of hepatitis virus and disease are discussed below:

1. Hepatitis A Virus - Hepatitis A virus (HAV) is classified as a hepatovirus which is a small, microscopic microbe. It has un-enveloped symmetrical RNA and it has many features similar to the picornavirus family. This virus causes infection of liver and the disease is called the Hepatitis A disease. This virus was first discovered in 1973. Hepatitis A is a contagious disease caused and transmitted through ingestion of contaminated food and water by the infected person. The fatality of this disease is relatively lower because people recover from it almost completely. Only certain severe cases that remain untreated for a long period of time may die of this disease. This disease spreads through contaminated food, water, inadequate sanitation, poor personal hygiene and also through sexual activities with the infected person.

Transmission of the Disease – The hepatitis A virus is primarily spread through the faecal-oral route when the person ingests food or water which has been contaminated

with the faeces of the infected person. It can also be transmitted if there is contamination of sewage water in the drinking water. Since this disease can be spread through physical contact therefore it can be transmitted through sexual activity if done with the infected person.

Incubation Period – The incubation period of the hepatitis A virus is of 14-28 days.

Symptoms - The first symptoms of hepatitis A may appear between 15 to 50 days after the person comes in contact with the virus. Hepatitis A can sometimes be asymptomatic i.e. there are no visible symptoms in the patient but when the symptoms are seen then the symptoms of hepatitis A include the following:

- Jaundice
- Yellow pigmentation in the eyes and skin
- Abdominal pain, especially in upper right side of the abdomen
- Dark urine
- Light colored stool
- Loss of appetite
- Nausea and vomiting
- Joint and muscle pain
- Itchy skin
- Fever
- Diarrhea
- Fatigue

Probability of Infection of Hepatitis A increases when:

- A person has close contact with someone who is infected with the virus.
- Poverty leads to unhygienic living conditions which make the person more susceptible to such infections.
- Use of drugs and excessive alcohol weakens the liver. The risk increases even more when drugs are taken through shared needles.
- Sometimes in rare cases it may be transferred from animals to humans as well.
- A person is involved in unprotected sexual activity with multiple partners.
- Old age people and children are more vulnerable and can be infected easily.

Diagnosis - For making the diagnosis, blood samples from the infected person are taken and tested mainly for two anti-bodies which are IgM (immunoglobulin M) antibodies and IgG (immunoglobulin G) antibodies. When the person is infected with hepatitis A his/her body produces IgM anti-bodies in response and these anti-bodies stay in the blood stream for about 3-6 months of the infection. When the virus had stayed in the body for a long time then as a immune response IgG anti-bodies are produced to protect the body from the virus. If a person tests positive for increased IgM anti-bodies it indicates that he/she has been recently infected by the virus, while presence of IgG anti-bodies along with IgM anti-bodies indicate prolonged infection. When the person has only IgG anti-bodies and not IgM anti-bodies this indicates that he/she had a hepatitis A infection in the past or had vaccinations to protect against it.

Treatment: Even till date no specific treatment exists for hepatitis A. This disease can only be prevented through timely and proper vaccination. If infected then certain medicines which might boost the immune system may help in the treatment. It is usually self cured if a person has strong immunity. While the treatment continues certain measures must be taken for quick recovery of the patient. These measures include:

- Proper Rest- Since tiredness and fatigue accompany this ailment therefore proper rest is crucial for the patient.
- Healthy Eating- Due to nausea and loss of appetite the patient might lose the useful nutrients from the body which may leave them weaker and complicate the situation. Timely and healthy food should be given to the patient, which includes fruits, juices and green leafy vegetables etc. Small meals from time to time should be given rather than giving heavy meals to the patient.
- Stay Hydrated – The patient should be given more fluids in the daily diet to prevent dehydration that might occur due to vomiting. In order to replenish the body of the patient with the nutrients it is advised to give then milk and fruit juices as fluids rather than plain drinking water.
- Consumption of alcohol should be avoided completely.
- Proper medications as prescribed by the doctors should be taken regularly.

2. Hepatitis B Virus -

Hepatitis B virus (HBV) is a member of the hepadnavirus family. It has a double-stranded DNA and it replicates by reverse transcription. Hepatitis B disease has been declared to be an endemic in the human population. Hepatitis B is a disease that causes both acute and chronic ill effects on the liver. According to World Health Organization in 2015 257 million people were affected with chronic hepatitis B and 887000 deaths were reported due to liver cirrhosis and hepatocellular carcinoma caused by complication in hepatitis disease. Hepatitis B has become a life threatening global health problem.

Transmission of the Disease- Transmission of hepatitis B is mainly done by the body fluids hence it is commonly transmitted from mother to child during delivery of the baby or through breast feeding. It can be transmitted if a healthy person indulges in unprotected sexual activity with the infected person, injection induced drug that involves sharing of needles also makes the person more susceptible for this infection. Exposure of a healthy person to the infected blood or body fluids like saliva, menstrual, vaginal and seminal fluids also leads to the transmission of this disease. Hepatitis infection can also occur during medical, surgical or dental procedures through the use of similar needle on more than one patient. The transmission of this virus is also water borne, so consumption of food and water contaminated by this virus can also pose to be harmful.

Incubation Period- The hepatitis virus can sustain outside the body of the host for up to 7 days. The incubation

period of this virus is 75 days on an average but this time can vary from 30 days to 180 days.

Symptoms - The symptoms for this disease appear within 30 days of infection. The symptoms include:

- Jaundice
- Yellow pigmentation in the eyes and skin
- Extreme Abdominal pain, especially in upper right side of the abdomen
- Dark urine
- Loss of appetite
- Nausea and vomiting
- Fever
- Extreme Fatigue and tiredness
- In case of extreme infection hepatitis B can develop into acute liver failure which can lead to death. In some cases hepatitis B virus can cause chronic liver infections that may later complicate into liver cirrhosis or liver cancer.

Probability of Infection of Hepatitis B increases when:

- Children less than 6 years of age when infected with hepatitis B virus may develop chronic liver ailments that might trouble them lifelong.
- People living in unhygienic conditions are more prone to this disease.
- People who are involved in unprotected sexual activity with multiple partners or infected people.
- Children born to hepatitis B infected mother are more exposed to this virus.

Diagnosis - For the diagnosis of the hepatitis virus blood test is generally done. In the blood sample the detection of the hepatitis B surface antigen HBsAg is done. Presence of this surface antigen confirms the hepatitis B infection. Both Acute and Chronic infections show different properties while testing. When the HBsAg antigen is found along with the IgM anti-bodies in the blood, this is indicative of acute hepatitis B virus infection. Presence of persistent HBsAg antigens for at least six months is the indicator of chronic hepatitis B virus infection.

Treatment - Like any other hepatitis disease, specific treatment of acute hepatitis B is still not found but chronic hepatitis b can be treated with medicines like oral anti-viral medicines. Both the infections of hepatitis B can be prevented very well by timely and proper vaccination. While the treatment is going on proper balance of nutrition in the patient should be maintained and fluid rich diet should be given for prevention of dehydration. Unwanted medications to curb symptoms of vomiting should not be given. Only prescribed medicines should be given. Since hepatitis B cannot be completely cured the medication can only help in suppressing the replication of the virus in the system. Because of this the people infected with hepatitis B has to go under treatment lifelong. Vaccination is the ultimate remedy to fight this disease. Proper vaccination after birth can prevent this disease forever.

1. Hepatitis C Virus:

Hepatitis C virus (HCV), is an infectious virus which causes hepatitis C disease that affects the liver adversely. Hepatitis C virus has an enveloped single-stranded RNA which is related to flavivirus. Hepatitis C virus can cause

both acute and chronic liver infections. It is also one of the major causes of the liver cancer.

Transmission of the Disease – The hepatitis C virus can be transmitted through blood therefore it is mainly transmitted through:

- The sharing of needles and injections while taking drugs.
- The use of unsterilized medical equipments and re-using same needle for more than one patient.
- Transfusion of blood during processes like dialysis if done without taking proper measures.
- Indulgence in sexual activities that lead to exposure to blood.
- It can be transmitted from infected mother to her baby either while delivery or through breast feeding.

Incubation Period – The incubation period for hepatitis C ranges from 2 weeks to 6 months.

Symptoms - Symptoms of Hepatitis C include the following:

- Jaundice
- Yellow pigmentation in the eyes and skin
- Extreme Abdominal pain, especially in upper right side of the abdomen
- Dark urine
- Loss of appetite
- Nausea and vomiting
- Fever
- Extreme Fatigue and tiredness
- Hepatitis C majorly causes liver cancer

Probability of Infection of Hepatitis A increases when :

- Use of shared needles by drug addicts or by medical professionals.
- Children born to HCV positive mothers.
- People exposed to unprotected sexual activity.
- People who come in contact with the contaminated blood.

Diagnosis – Testing for hepatitis C virus is done through serological test. If the anti-hepatitis C virus antigens are found in the blood then it is indicative that the person is infected by the HCV virus.

Treatment – Since this virus could either produce short-term illness or chronic ailment therefore treatment is also done accordingly. According to guidelines given by World Health Organization in 2018, the cure for hepatitis C should be done through pan-genotypic direct acting antiviral drugs (DAAs). The DAAs can cure HCV in a short span usually in 12-24 weeks. Though probable cure is there but prevention of this disease is crucial hence proper and timely vaccination is of utmost importance.

Ayurvedic Cures for Hepatitis Virus Infections

Although vaccination is available for prevention of the Hepatitis disease but till date no complete cure for this disease is available. Therefore, now the medical science is turning its attention towards the ancient traditional medicine systems to find answers. The Indian system of medicine i.e. ayurveda has ample wisdom and probable cure for hepatitis related problems. According to ayurveda Hepatitis B and associated diseases are correlated with

Kamala Roga in Ayurveda. In Ayurveda the treatment of Kamala includes pitta pacifying rasas which enable healthy gut and strong digestive system. Generally *Picrohiza kurroa*, *Arogyawardhini*, *Tinospora cordifolia* and *Phyllanthus amarus* are used in the treatment of viral hepatitis. Details about some of these medicinal plants useful in liver ailments are as follows:

1. **Phalatrikadi Kwath** – It is an Ayurvedic medicine that is effective in curing liver disorders. It is also used to treat vomiting and gastritis. It contains eight herbal components such as haritaki, vibhitaki, amalaki, patola (snake gourd), kiratatakata, vasa, kalmegha, triphala.
2. **Triphala** – It is an Ayurvedic medicine which is a combination of 3 medicinal fruits that are Haritaki, Vibhitaki and Amlaki. The combination of these 3 ingredients has antioxidant properties and it is hepatoprotective in nature and protects liver from free radical damage and from other infections as well.
3. **Vasa (*Adhatoda vasica*)** – It is an Ayurvedic medicinal plant which is useful in treatment of hepatic related ailments and upper respiratory tract infections. The major alkaloid present in this plants extract is vasicine. Various researches have revealed that this compound shows anti-inflammatory effects, anti-diabetic effects, antioxidant properties and hepatoprotective properties as well.
4. **Giloy (*Tinospora cordifolia*)** - This plant is also called amruta in ayurveda because of its property to cure number of diseases ranging from heart diseases, orthopedic problems as well as digestive problems. In researches done on *Tinospora cordifolia* it has been well established that this plant shows immunomodulatory actions, anti-allergic actions as well as hepatoprotective properties.
5. **Neem (*Azadirachta indica*)** – This plant is most commonly used in ayurvedic medicine. Extracts of neem leaves have been found to contain various compounds that show immunomodulatory and anti-inflammatory effects. Neem is also known for its anti-diabetic, antiulcer, antimalarial and anti-microbial properties.
6. **Kirattikta (*Swertia chirayita*)** – this plant is mainly involved in treatment of diseases like diabetes, jaundice and other liver related ailments because of the hepato-protective properties of the bio-active agents present in this plant which are called xanthone and secoiridoid glycosides. This plant is additionally used in treatment of fevers and skin related issues as well.
7. **Katuki (*Picrorhiza kurroa*)** – The extracts from this plant are useful as cure for ailments like jaundice, vomiting and periodic fevers. The bioactive compound of this plant called Picroliv is a glycoside compound and it is the main medicinal constituent. The research on this compound shows that picroliv is very effective in curing diseases like acute viral hepatitis, tuberculosis and bronchial asthma.

8. **Kalmegh** (*Andrographis paniculata*) - This is a plant used in various Ayurvedic medicines that are involved with ailments in the gut. The active constituent of this plant is Andrographolide. This medicine induces hepatic regeneration and increases resistance in the liver for damage by toxins. This compound also activates reticulo-endothelial system and enhances detoxification of carcinogen from the blood stream and from the body in general.
9. **Musta and Nagaramustaka** (*Cyprus rotundus and Cyprus eleusinoides*) - These plants are rich in antioxidant and anti-inflammatory properties that help in liver protection. Active compounds from these plants decrease the effect of viral infection on the liver and renormalizes liver functions. These plants have special hepatoprotective properties.
10. **Bhumyamalaki** (*Phyllanthus niruri*) - The extracts from this plant are known to show hepatoprotective properties. The extracts from this plant have the ability to suppress the transcription of HBV messenger ribonucleic acid (mRNA) and also suppresses its transcription. This hinders the replication of the virus and thereby preventing its spread in the liver.

CONCLUSION

The liver is known as the mother of all glands of the human body. It is one of the major organs of the body and it is involved in various life sustaining functions like emulsion of fats during digestion, production of various activating enzymes and it is also functional in aiding the production of various blood proteins. Liver also converts ammonia into urea and thereby aids in its removal through the excretory system. Since the liver is functional in many processes of the body, it is also more prone to infectious diseases like jaundice; hepatitis etc. and also sometimes lifestyle issues like excessive intake of alcohol may even cause fatal liver cirrhosis. Amongst all the diseases, Hepatitis is one of the most fatal diseases of the liver. Hepatitis is caused by the family of hepatitis virus and these viruses are of different kind, hence produce different type of disease in the body. Hepatitis is majorly of 5 types: Hepatitis A, B, C, D and E. general symptoms of hepatitis include- jaundice, intense abdominal pain, yellowing of eyes and skin, nausea, extreme tiredness and dark urine. Till this date hepatitis remains incurable by the western medicine system. The only way forward is vaccination which is now available and more and more people are getting it in time. But if we talk about cure it still has to be worked upon. Indian traditional medicine system can play a big role in producing the cure for this disease. Various Ayurvedic medicines and herbs like Bhumyamalaki,

Guduchi, Haritaki, Kalmegha, Kutki, Musta, Pippali, Punarnava can be used in treatment of liver ailments like hepatitis A, B and C. This paper has made the prospect of producing medicine for hepatitis through ayurveda more probable. It is found in various researches that above mentioned medicinal plants have positive effect on the health of human liver and some of these also show liver protective properties. Therefore medicine from such plants may pose a durable cure for hepatitis but extensive research in this area is still required.

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