

MODE OF ACTION OF AN AYURVEDIC PREPARATION ON WITHDRAWAL SYMPTOMS OF ALCOHOLISM

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ABSTRACT

Alcoholism is one of the serious ailments of the modern society. The consumption & abuse of alcohol has become a major public health problem. The effect of alcohol abuse ranges from a mild hang-over to mass poisoning, disease and death on a large scale. The young generation is becoming addicted to alcohol on a large scale due to stress, tension, unemployment etc. which is pulling the youth of society towards a serious evil i.e. alcoholism which is a huge threat for the future of society, country, family of the person and for himself also. Now a days alcoholism is a disease which is treated on basis of its withdrawal symptoms. If the withdrawal symptoms are controlled the patient can easily get rid of alcohol abuse. The present study is a scientific conceptual review of an *ayurvedic* preparation. This study explains the mode of action of *Punarnavadi Ghritta* on withdrawal symptoms of alcoholism as per the concepts of modern science. The study deals with the scientific logic and concepts according to modern science that how the different constituents of *Punarnavadi Ghritta* help to relieve the withdrawal symptoms of alcoholism. The constituents of all the contents of *Punarnavadi Ghritta* were explained that how they works to breakdown the pathogenesis of alcoholism and relieve the withdrawal symptoms.

KEYWORDS: Alcoholism, Withdrawal symptoms, Punarnavadi, Ghritta

INTRODUCTION

The alcohol addiction is fatal which results in serious physical and psychological conditions. Excessive drinking disrupts family life and can often result in violence and neglect. Those under the influence of alcohol are at greater risk of injury and diseases. According to World Health Organization, alcohol is implicated as a risk factor in many health disorders including high blood pressure, stroke, coronary heart disease, liver cirrhosis and

various cancers. It is impossible to define a level at which alcohol is universally without risk of harm.¹ In the age group 20-39 years approximately 25% of total deaths are alcohol attributable. Depression, anxiety, drug misuse, nicotine dependence and self-harm are commonly associated with excessive alcohol consumption. The role of alcohol in domestic violence is substantial: a third of violent husbands drink, according to a WHO study in 2012. Most of the violence

took place during intoxication.² With more than half of all alcohol drinkers in India falling into the criteria for hazardous drinking, alcohol abuse is emerging as a major public-health problem in the country. There is evidence even to suggest that the poor drink more than they earn—a deadly spiral of alcohol and debt. One recent study found that the average monthly expenditure on alcohol of patients with alcohol addiction is more than the average monthly salary.³ Alcohol addiction/abuse is a disorder which can be better treated by stopping the consumption of alcohol by educating and encouraging the society about hazards of alcohol. But the patients who are consuming alcohol from a long period the sudden cessation or stoppage of alcohol results in withdrawal symptoms. Patient who wants to leave alcohol consumption, by sudden withdrawal of alcohol, they suffer from serious withdrawal symptoms; which force them to take alcohol again. These withdrawal symptoms act as a big hurdle in treatment of alcohol addicted patients. *Acharya Chakrdatta* mentioned *Punarnavadi Ghritta* for the treatment of Madatyaya.⁴ It is an herbal preparation and is used as *Rasayana*. It mainly contains the rich concentration of compounds which possess good antioxidant activity. It is combination of *Punarnava kwath*, *Yashtimadhu kalka*, *Go-dugdh* and *Go-ghritta*. The present study is the conceptual review of each single content of *Punarnavadi Ghritta* that how their constituents works to breakdown the **Diagnostic Criteria for Alcohol Withdrawal Syndrome⁶**:-

pathogenesis of alcoholism and to relieve the withdrawal symptoms as per the concepts of modern science.

Alcohol withdrawal syndrome⁵:-

The manifestation of alcohol withdrawal occurs when a person decreases or stops a high level alcohol intake after the regular ingestion of alcohol continued over many months. Once the brain has been repeatedly exposed to high doses of alcohol, any sudden decrease in intake can produce withdrawal symptoms. Although the exact mechanism is not known, most symptoms appear related to over activity of various portions of the nervous system resembling a “rebound” phenomenon after profound suppression. Tremors appear within hours of cessation of alcohol ingestion and gradually increase to peak within 1 or 2 days. The pathophysiological mechanisms of tremors are not known, but it probably represents an exaggerated physiological tremor. Other sign and symptoms appears after withdrawal of alcohol are:- weakness, dyspnoea, pain in muscle, cold sweat, insomnia, loss of appetite, nausea, vomiting, diarrhoea, dehydration, restlessness, exaggerated reflexes, cough, raised temperature, fluctuating BP, hallucinations, loss of memory and delirium tremens. The withdrawal symptoms generally begin within 5 to 10 hours of decreasing alcohol intake and severity of these signs and symptoms vary with the intensity and duration of the previous alcohol exposure. In mild forms of withdrawal, the signs and symptoms usually resolve after 48-72 hours. If any three of the following are present in an alcoholic person in withdrawal period, it

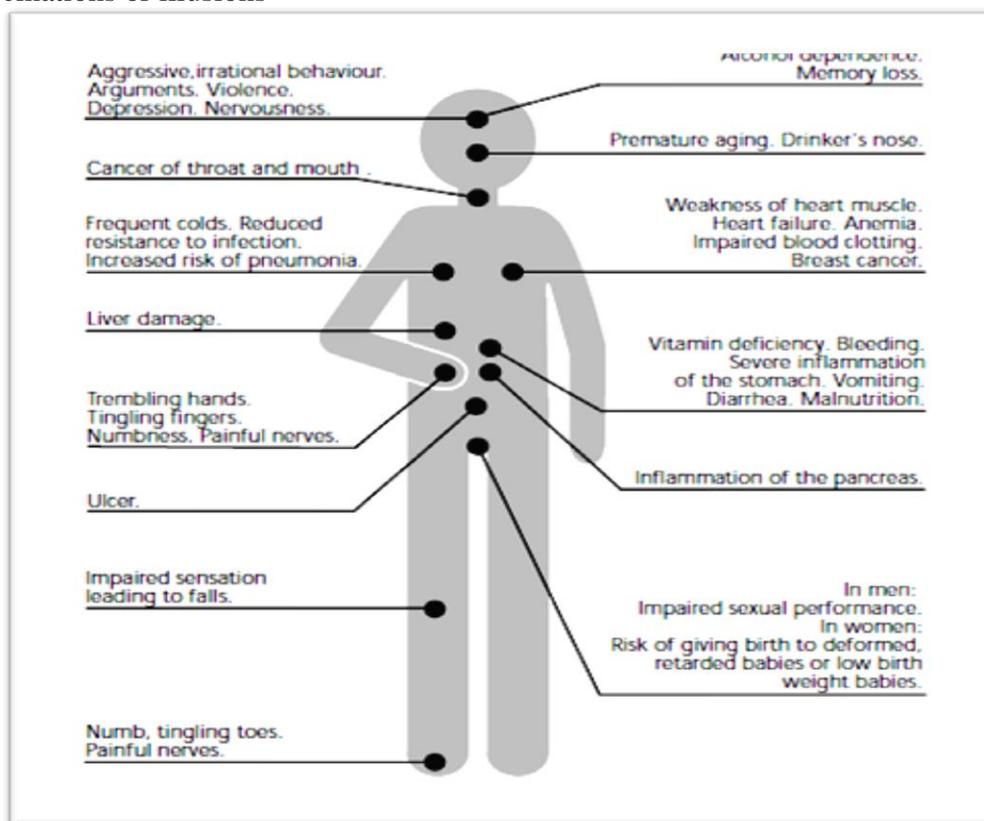
is associated with alcohol withdrawal syndrome:

- Tremor of outstretched hands, tongue or eyelids.
- Sweating
- Nausea, Retching or vomiting
- Tachycardia or Hypertension
- Anxiety
- Psychomotor agitation
- Headache
- Insomnia
- Malaise or Weakness
- Transient visual, tactile or auditory hallucinations or illusions

-Grand mal convulsions.

Effects of High – Risk Drinking⁷:

A patient is said to be a high-risk drinker when his score is above 16 according to Alcohol Use Disorder Identification Test prescribed by WHO⁸. The AUDIT describes how to identify the persons with hazardous and harmful pattern of alcohol consumption. High-risk drinking may lead to social, legal, medical, domestic, job, financial problems and also results in different systemic disorders in the body.



Fatal Dose & Fatal Period⁹:

The fatal dose depends upon the habit, age of the person, nature and strength of the liquor taken. The usual fatal ethanol dose corresponds approximately 5 gm /kg

(Adult) and 3 gm /kg (child). In terms of blood alcohol level an excess than 400 to 500 mg/100 ml is usually considered to be lethal. The usual fatal period is 12 to 24 hrs. Though death may occur in few minutes or be delayed for 5 to 6 days.

MODE OF ACTION OF PUNARNAVADI GHRITA

The drug '*Punarnavadi Ghritta*' is mentioned in the treatment of *Madatyaya* by *Acharya Chakradatta*.⁴ The drug was prepared according to procedure as mentioned in the classical text. It contains *Punarnava kwath* (8 part), *Yashtimadhu kalka* (1 part), *Go-dugdha* (4 part) and *Go-ghritta* (4 part). The first three ingredients are mixed together and the *go-ghritta* is to make *sidhh* (medicated) from them on low fire⁴ and is given in the dose of 6 ml. to 10 ml. with warm water.¹⁰ The contents *Punarnava*, *Yashtimadhu*, *Go-dugdha* and *Go-ghritta* have the potency and properties which directly act to relieve the withdrawal symptoms of alcoholism.

Probable Mode of Action of *Punarnava*

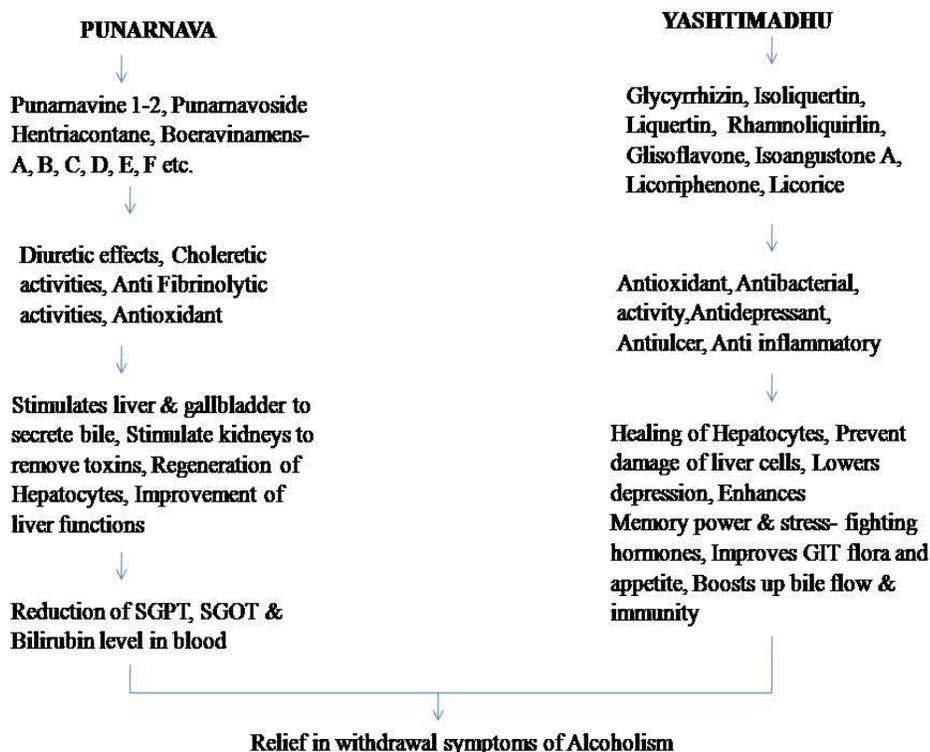
Its main chemical constituents are Punarnavine1-2(C₁₇H₂₂N₂O), Punarnavoside, Hentriacontane, Boerovinanones A,B,C,D,E,F etc. which have diuretic, choleric activities and are anti fibrinolytic agents. By choleric action it stimulates liver and gall bladder to secrete more bile, thus it helps to remove toxins and promotes clearance of liver and gallbladder. The other toxins are further removed from body by its diuretic activities. It increases the re-absorption of un-conjugated bilirubin from gut and circulation. It also enhances RBC formation

and its anti-fibrinolytic activity protects liver and regenerates hepatocytes, thus improves liver functions. Retenoid, Ursolic acid, Steroid and flavones of *Punarnava* has antioxidant activity and promotes synthesis of globulin and albumin lowers the serum bilirubin in the body. The morphinomimetic central analgesic property of *Punarnava* lowers the inflammatory changes produced in liver by alcohol. The alkaloids increases the liver ATP phosphohydrolase activity to rejuvenate the liver cells. Extract of *Punarnava* protects liver and helps in regeneration of hepatocytes as it reduces levels of SGPT, SGOT and alkaline phosphate and act as antioxidant to prevent damaging of cells.

Probable Mode of Action of *Yashtimadhu*

It contains flavonoids i.e. liquirtin, isoliquirtin, glucoliquirtin, licorice, glisoflavone etc. which have immunomodulatory and antibacterial actions. These help in enhancing memory power, to treat depression and act as antioxidant, antitussive and expectorant. These chemicals improve immunity, act as hepato-protective, anti-inflammatory, anti-ulcer and improves GIT flora. These helps in breakdown of adrenal hormones (stress fighting hormones), increases bile flow and lowers cholesterol levels.

Flow chart: 1 Probable mode of action



Probable Mode of Action of Go-dugdha

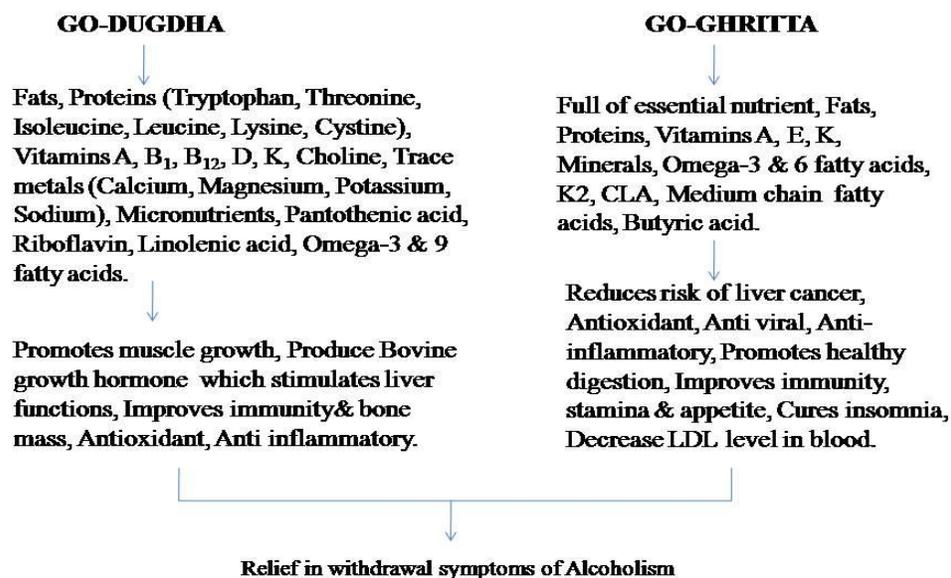
The fatty acids omega-3 and omega-9 in cow's milk reduces high blood pressure, blood cholesterol levels and act as antioxidant. The conjugated linoleic acid improves the immunity and has anti inflammatory effects. The constituents like tryptophan, tyrosine etc. produces bovine growth hormone which stimulates liver functions.

Probable Mode of Action of Go-ghritta

It is rich in butyric acid which improves digestion, boosts immunity, cure insomnia,

increases appetite and stamina. It enhances the availability of enzymes responsible for detoxification of cancer causing substances. It reduces the activities of cytochrome P₄₅₀ (CYP) enzymes which are responsible for activation of carcinogen in liver, hence it reduces the risk of liver cancer. The omega-3 and omega-6 fatty acids acts as antioxidant, anti inflammatory agents and reduces LDL levels in blood. It is rich in medium chain fatty acids which are absorbed directly in the liver and act as consistent energy source for hepatocytes.

Flow chart: 2 Probable mode of action



Probable mode of action according to Ayurveda

*Punarnava - Tridosha shamaka*¹¹

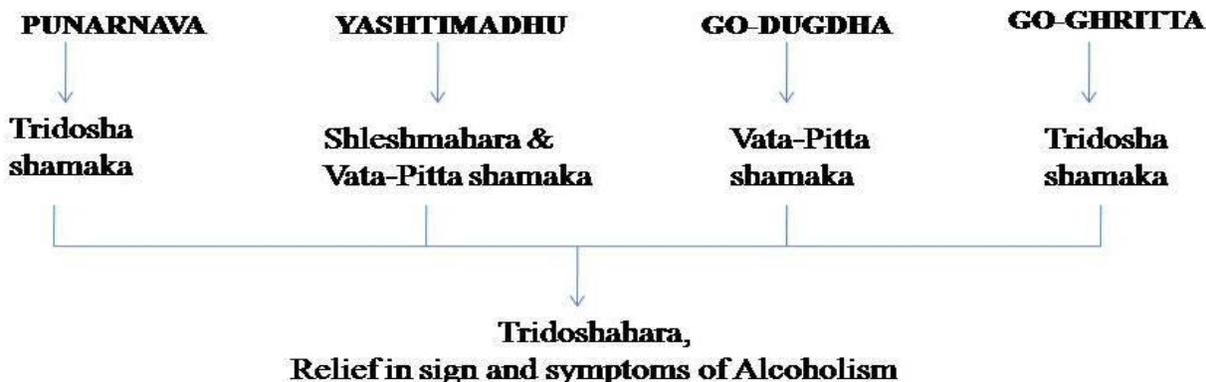
*Yashtimadhu - Vata-Pitta shamaka and Shleshmahara*¹²

*Go-dugdha - Vata-Pitta shamaka*¹³

*Go-ghritta - Tridosha shamaka*¹⁴

Madatyaya is a *Tridoshaja vyadhi*¹⁵, and the contents of *Punarnavadi ghritta* have *Tridosha shamaka* effects. So it may also help in relieving the sign and symptoms of *Madatyaya*.

Flow chart: 3 Probable mode of action



DISCUSSION AND CONCLUSION

Alcoholism is a multifactorial disorder in which biological and genetic factors interact. Chronic alcohol poisoning occurs after long and continuous consumption of at least 50 units of alcohol per week for more than 8-10 years¹⁶ and it is characterized by a gradual physical, mental and moral deterioration.¹⁷ The major site of alcohol metabolism in body is liver and kidneys so in the patients of chronic alcoholism liver, kidneys and nervous system is generally affected. The main action of the drug *Punarnavadi Ghritta* is to normalise the disturbed functions of different organs of body. It detoxify the toxins present in the body by its choleric activities, helps in healing and regeneration of hepatocytes, prevents damage of liver cells, improves liver functions, reduces SGOT, SGPT, bilirubin level in blood, provide strength to neurons and act as antioxidant.

Each drug performs its action with the properties of its chemical constituents. To cure any disease it is necessary to balance the natural functions of the body. Drugs are used in combination on the basis of action and properties of its constituents which act as antagonist to the main causative factors of the disease; which results in breakdown of pathogenesis to relieve the sign and symptoms of the disease. Similarly *Punarnavadi ghritta* helps in maintaining the natural functions of effected organs of body and relieves the sign and symptoms of Alcoholism by the properties of its different constituents. The drug is used in the form of *sanskarit ghritta*. When *Ghritta* is processed with the herbal drugs it increases its properties and acts as a stimulant. It has

yogavahi properties so it is easily and effectively delivered to the every cell of the body and helps in reducing the withdrawal symptoms of alcoholism.

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