**Review Article**

**UNDERSTANDING THE FEATURES OF *MADATYAYA* (ALCOHOLISM)**

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**ABSTRACT:**

Alcoholism is one of the serious social problems which is rapidly increasing in every year. The fastest growth is being observed in the developing countries of Asia more particularly in India. Drinking of alcohol makes the life of a man very miserable. Alcohol not only degrades the health of the person but also affects his family and society. In *Ayurveda*, the varieties of illnesses caused by the improper use of alcohol are grouped under one heading ‘*Madatyaya*’. The different types of *Madatyaya*, *Panatyaya*, *Paramada*, *Panajeerna*, *Panavibhrama*, *Dhwamsaka*, *Vikshaya* are the few conditions caused due to the excessive consumption of alcohol without following the rules and regulations mentioned in our classics with the clinical features. Here is a small effort to understand the disease *madatyaya* in terms of modern perspective.

**KEY WORDS:** *Madatyaya*, alcoholism, *panatyaya*, *sannipataja madatyaya*

**INTRODUCTION:**

Alcoholism refers to addiction to alcohol. It is a chronic disorder, in which a person is unable to refrain from frequent and excess consumption of alcohol for physical or psychological reasons. The World Health Organization (WHO) has listed alcoholism as one of the three most deadly killer diseases of the 20th century[1]. Alcoholism is also one of the serious social problems. It often brings poverty and certain amount of crime and results in material unhappiness and broken homes. It also leads to numerous traffic accidents.

The clinical features of *Madatyaya* are nothing but the immediate and acute systemic dysfunctions to chronic and severe multiple systemic dysfunctions due to heavy and prolonged use of alcohol against rules and regulations. In other words, we can say that the word alcoholism which is used in broad sense can be said as equivalent to the word *Madatyaya*. *Acharya* Charaka and *Acharya* Vagbhata have mentioned 4 types of *madatyaya* namely *Vataja*, *Pittaja*, *Kaphaja* and *Sannipataja* whereas *Acharya* Sushruta classifies the diseases caused due to inappropriate use of alcohol as *Panatyaya*, *Paramada*, *Panaajeerna* and *Panavibhrama*. Whenever a person consumes heavy and prolonged alcohol after a strenuous act or without intake of nutritious food or not having any physical exercise it results in deranged carbohydrate and fat metabolism leading to increased protein catabolism. This results not only in *dhatukshaya* but also in *ojokshaya* too.

**Aims and Objectives:**

* To understand the features of *Madatyaya* in terms of modern perspective.

**MATERIALS AND METHODS:**

The patients of *Madatyaya*, generally use to take alcohol before intake of food. When patient becomes addicted and develops dependence, he will be consuming more alcohol and a little food. Due to this minimal intake of food and excessive intake of alcohol, which has no nutritious value, the body will not get sufficient nutrition and there will be depletion of protein due to its increased catabolism as needed carbohydrates and fats are already catabolised. Due to prolonged and heavy intake of alcohol, functions of liver and kidney also will be deranged. It will result in increased production and decreased excretion of protein end products and by-products of protein metabolism. This deranged metabolism may be the state called the state of ‘*Ksharatva’* of *annarasa* in the body.

According to modern medicine ethanol is absorbed from mucous membranes of the mouth and esophagus (in small amounts), from the stomach and large bowel (in modest amounts), and from the proximal portion of the small intestine (the major site) which is also the site of absorption of many of the B vitamins[2]. It is highly water-soluble and hence rapidly enters the blood stream. It is modestly fat-soluble and is hence neurotoxic. Only 2-10% of ethanol is excreted unchanged through the lungs, kidneys and sweat. The rest is metabolised in the liver, mostly in the cytosol and at high concentrations in the microsomes of the smooth endoplasmic reticulum[3].

Ethanol rapidly enters the bloodstream and, because of its high solubility in water, is distributed to almost every body system. Because of its modest fat solubility, alcohol is likely to have effects on body membranes rich in fat, including neurons. Alcohol is a potent drug that causes both acute and chronic changes in almost all neurochemical systems. Thus alcohol abuse can produce serious temporary psychological symptoms including depression, anxiety, and psychoses. Long-term, escalating levels of alcohol consumption can produce tolerance as well as such intense adaptation of the body that cessation of use can precipitate a withdrawal syndrome usually marked by insomnia, evidence of hyperactivity of the autonomic nervous system, and feelings of anxiety[4].

Chronicalcoholism is responsible for morphologic alterations, primarily in the liver and stomach, but they may occur in virtually all organs and tissues. Chronic alcoholics suffer significant morbidity and have a shortened life span, related principally to damage to the liver, GI tract, CNS, cardiovascular system, and pancreas[5].

The liver is the main site of chronic injury. In addition to the fatty change, chronic alcoholism causes alcoholic hepatitis and cirrhosis. Cirrhosis is associated with portal hypertension and an increased risk for the development of hepatocellular carcinoma. In the GI tract, chronic alcoholism can cause massive bleeding from gastritis, gastric ulcer, or esophageal varices (associated with cirrhosis), which may prove fatal. Thiamine deficiency is common in chronic alcoholic patients; the principal lesions resulting from this deficiency are peripheral neuropathies and the Wernicke-Korsakoff syndrome. Cerebral atrophy, cerebellar degeneration, and optic neuropathy may also occur. Alcohol has diverse effects on the cardiovascular system. Injury to the myocardium may produce dilated congestive cardiomyopathy (alcoholic cardiomyopathy). Moderate amounts of alcohol (one drink per day) have been reported to increase serum levels of high-density lipoproteins (HDL) and inhibit platelet aggregation, thus protecting against coronary heart disease. However, heavy consumption, with attendant liver injury, results in decreased levels of HDL, increasing the likelihood of coronary heart disease. Chronic alcoholism is also associated with an increased incidence of hypertension. Excess alcohol intake increases the risk of acute and chronic pancreatitis. The use of ethanol during pregnancy-reportedly as little as one drink per day-can cause foetal alcohol syndrome. It consists of microcephaly, growth retardation and facial abnormalities in the newborn and reduction in mental functions in older children. It is difficult to establish the amount of alcohol consumption that can cause foetal alcohol syndrome, but consumption during the first trimester of pregnancy is particularly harmful. Chronic alcohol consumption is associated with an increased incidence of cancer of the oral cavity, esophagus, liver, and, possibly, breast in females. The mechanisms of the carcinogenic effect are uncertain. Ethanol is a substantial source of energy (empty calories). Chronic alcoholism leads to malnutrition and deficiencies, particularly of the B vitamins[5].

According to Ayurveda, inappropriate usage of alcohol for long duration leads to the development of the disease *madatyaya*. It has been classified into 4 types depending upon the doshic involvement viz., *Vataja*, *Pittaja*, *Kaphaja* and *Sannipataja*. Features of *Vataja Madatyaya* [6] can be understood as follows: *Hikka* may be due to gastritis or other gastrointestinal problems leading to irritation of diaphragm, *Shvaasa* may be due to decreased respiratory functions and infections, *Parshvashoola* may be due to cardiac diseases or pancreatitis, *Shirah* *kampa* may be due to cerebellar degeneration, *Prajagara* and *Bahupralapa* may be due to deranged functions of nervous system and associated psychiatric conditions.

Features of *Pittaja Madatyaya* [7] can be understood as follows: *Trishna* may be due to dehydration, *daha* may be due to peripheral neuropathy, *jvara*, *sveda*, *moorccha*, *vibhrama* may be due to hyperactivity of autonomous nervous system, *atisara* may be due to acute or chronic gastritis and hyperactivity of autonomic nervous system and green coloration of the body may be due to liver dysfunction. If this *Paittika Madatyaya* is also dominated by aggravation of *vayu*, then this condition may be cured immediately or may cause instantaneous death. Commenting on this Chakrapani says that association of aggravated *vayu* in the *Paittika* type of *Madatyaya* manifests instantaneous effects like those of the fire associated with strong wind in the mundane world [8]. By implication, if effective treatment is done, then the ailment is cured instantaneously, and if such treatment is not provided to the patient, then he may succumb to death instantaneously. This may be the clinical condition known as Alcoholic hepatitis, which occurs after a bout of heavy alcohol intake with fever, jaundice and multiple spider naevi. In this condition, the asparate transaminase is only mildly elevated but patient may be deeply jaundiced. The white cell count is markedly increased and the prothrombin time may be very prolonged. Such patients have a significant mortality and may later develop cirrhosis.

Features of *Kaphaja Madatyaya* [9] can be understood as follows: *Chhardi* and *hrillasa* may be due to autonomic hyperactivity, *arochaka* may be due to erosion of gastrointestinal mucosa and decreased secretion of gastric juices, *tandra*, *staimitya*, *gaurava* and *sheetapareeta* may be due to cardiopulmonary dysfunctions.

The presentations of various symptoms in *Sannipataja* *Madatyaya* [10] are as follows: *Shareera duhkham* – It may be suggesting that the person becomes uneasy at times or in places when alcohol is not available. *Balavat sammoha* – This means confusion, ignorance, unconsciousness, bewilderment. It can be even *indriya moha*. This suggests, the person will be attracted by the alcohol frequently. He tries to control drinking by making rules, like not taking it on weekdays or when he is alone, but often fails to do so. Moreover, if he starts once he finds difficult to control it. *Pratata trishna* – This may be the excessive desire or strong craving for alcohol at times or in places when it is not available. It can be even severe thirst which occurs as a result of the dehydration due to vomiting, diarrhoea or diaphoresis (withdrawal symptoms). *Chhardi, Atisara* and *Hrillasa* may be occurring due to the Gastrointestinal upset of withdrawal state. *Hridaya vyatha* – may be agitation, palpitation, perturbation, uneasiness, anguish, fear, or may be pain in the chest produced as a result of gastrointestinal upset all these can be found in withdrawal state. *Bhrama* – giddiness, which may be due to the hypertension owing to excessive consumption of alcohol for prolonged period or due to the deficiency of essential nutrients in the body as a result of negligence in food intake. *Pralapa* may be the condition due to alcohol withdrawal delirium. *Sphuranam, Vepanam, Shareera kampa* – these are the various degrees of tremulousness caused as a result of the withdrawal from the alcohol. *Sphuranam* may be the fine tremors, *Vepanam* may be the coarse tremors and *Shareera kampa* may be the tremulousness of the whole body. *Aruchi* - Anorexia. *Jvarah sheetoshna lakshana* (Fever having the characteristics of cold and heat or low grade), *Prajagarah* (Insomnia), *Roopaanaam ashastaanaam darshanam* (Visual hallucinations), *Sveda* (Diaphoresis) are the other features of withdrawal state.

According to Sushruta, *Vatika Panatyaya* is characterized by *stambha*, *angamarda*, *hridayagraha, toda, kampa, shiroruja*; *Paittika Panatyaya* by *sveda, pralapa, mukha shoshana, daha, moorccha, vadanalochana peetata*; *Kaphaja Panatyaya* by *vamathu, sheetata, kaphapraseka*; and *Sannipataja Panatyaya* is characterized by the symptomatology of three *doshas* [11]. These are equivalent to the conditions of *Madatyaya* described by Charaka that can be of acute or chronic origin.

*Paramada* is characterized by *ooshmaanam, angaguruta, virasananatvam, shleshmadhikatvam, aruchi, malamootrasanga, trishna, shiro* and *sandhi ruja* [12]. It may be a special condition where the person suffers immediately from after effects of excessive alcohol consumption or hang over features.

*Adhmanam, udgiranam amlarasa, vidahi* and other features of aggravated *pitta* characterize *Panajeerna*[13]. It may be a condition of acute or chronic gastritis leading to acid peptic disorders. Due to insufficient secretion of gastric juices the food substances are not digested properly and that will turn in to *vidagdha avastha* presenting with above symptoms.

*Panavibhrama* is characterized by *hrit gatra toda, vamathu, jvara, kantha dhooma, moorccha, kaphasravanam, shiroruja, vidahi*, and *sura, anna vikriteshu* *dvesha* [14]. It may be a very chronic and severe condition where multiple systemic involvements can be seen due to heavy and prolonged usage of alcohol.

*Dhvamsaka* [15] is characterized by*shleshma praseka* **(**excessive salivation), *kantha aasya shosha* (dryness of the throat and mouth), *shabda asahishnuta* (intolerance to noise), excessive *tandra* (drowsiness) and *nidra* (sleep). It seems that severe nutritional deficiency with deranged functions of vital organs associated with severe debility is involved in *Dhvamsaka*.

*Vikshaya* [16] is characterized by *hritkantha roga* (thoraco-laryngial disorders), *sammoha* (loss of orientation), *chhardi* (vomiting), *anga ruja* (body pains), *jvara* (fever), *trishna* (thirst), *kasa* (cough), *shirashoola* (headache). It seems that in disease *Vikshaya* the involvement of cardiopulmonary and brain dysfunction with other systemic dysfunctions is present.

The complications of *Madatyaya* [17] can be explained as follows – These complications arise due to multiple systemic involvements. For e.g., *hikka* due to gastro-hepatic involvement like chronic gastritis irritating diaphragm or due to rupture of esophageal varices or due to hepatomegaly or due to cardiopulmonary dysfunctions; *Jvara, Vamathu, Vepathu* due to dysfunction of nervous system or liver or kidney; *Parshvashoola* due to dysfunction of gastro-hepatic system, pulmonary system, dysfunction of pancreas; *kasa* due to decreased pulmonary capacity and *Bhrama* can be due to severe nutritional deficiency, or cardio-pulmonary or other systemic involvements.

The characteristics of bad prognosis [18] can be explained as follows – *Heenottaraushtham* (thinner upper lip) – all the muscles of mouth are innervated by facial nerve. Due to chronic intake of alcohol, degeneration of this nerve takes place by which the loss of motor function of leavator labii superioris muscle takes place. That is why the upper lip will be hanging over the lower lip. Remaining symptoms of bad prognosis of *Madatyaya* like *jihvaushthadantam* *asitam* *vaa* *neelam* (black or blue tongue, lips and teeth) can be explained as the symptoms due to irreversible dilatation of facial small veins which result in cyanosis of these veins. This discoloration is prominent on the cheeks and nose. *Peete nayana rudhirata* (reddish discolouration of conjuctiva) can be explained as chronic gastritis due to chronic alcohol intake may result in vitamin A deficiency resulting in chronic conjunctivitis with reddish discoloration of conjunctiva. *Atisheetam* (excessive cold) and *amandadaham* (excessive cold) may be due to the poor circulation or due to over perspiration and severe dehydration.

The above description very clearly indicates that disease state of *Madatyaya* can be considered from immediate and acute systemic dysfunctions to chronic and severe multiple systemic dysfunctions due to heavy and prolonged use of alcohol against rules and regulations. So, in other words we can say that the word alcoholism which is used in broad sense can be said as equivalent to the word *Madatyaya*.

*Madatyaya* is not just alcohol intoxication, dependence or withdrawal state, but it is the condition where multiple systemic dysfunctions are involved besides those conditions. In modern medicine, other systemic involvements are considered as medical conditions and are treated separately but in *Ayurveda* it is not so. As explained above, symptoms of *Madatyaya* indicate that dysfunction of multiple systems are involved in it. As an alcoholic neglects taking food properly, timely and sufficiently, the unavailability of carbohydrates and fats take place in the body leading to increased protein catabolism for needed energy for bodily functioning. To compensate and supply the food that is needed, to lower the nitrogenous wastes and to counteract the hyperexcitability of brain due to decreased alcohol levels in blood, which produces withdrawal symptoms including delirium tremens and withdrawal seizures, administration of alcohol along with other food material is very essential. When alcohol with food is given the food is digested very easily as it increases the gastric secretions in the stomach, and supplying the needed nutrition as well as tranquilizing effects. That’s why in the treatment of *Madatyaya*, mainly administration of food like various dishes prepared of chicken, mutton and other non-vegetarian articles, chutneys etc are advised along with alcohol. Therefore, the *ksharatva* produced in the body by increased catabolism of proteins due to inappropriate intake of alcohol for a long time, will be counteracted by appropriately administered alcohol. It will help tissue building i.e., *dhaatu vardhana* there by *ojovardhana*.

**CONCLUSION:**

Drinking of alcohol makes the life of a man very miserable. Alcohol not only degrades the health of the person but also affects his family and society. When consumed it is quickly absorbed in the bloodstream and is distributed to all body tissues. Because alcohol is uniformly dissolved in the body’s water, tissues containing a high proportion of water receive a high concentration of alcohol. Prolonged use of alcohol physically proves to be toxic to liver and brain. Apart from the disorders of liver and the nervous system, the alimentary disorders, pancreatitis, cardiopulmonary manifestations, nutritional disorders, reduced immune system and hence susceptible to the infections etc are also very common. The multisystem involvement of the alcoholism has been identified by our great sages of Ayurveda and they have classified the disease *madatyaya* accordingly depending upon the doshic predominance. It is quite obvious after analysing the symptoms of *madatyaya* that the disease state of *Madatyaya* can be considered from immediate and acute systemic dysfunctions to chronic and severe multiple systemic dysfunctions due to heavy and prolonged use of alcohol against rules and regulations. So, in other words we can say that the word alcoholism which is used in broad sense can be said as equivalent to the word *Madatyaya*.

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