

## LITERARY REVIEW OF STAGES OF MADA W.S.R. ACUTE ALCOHOL INTOXICATION

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### ABSTRACT:

Ayurved is science of life which is divided in eight branches. *Agadtantra* is one of them which deals with study of *Visa (Poison)*. *Visa* are the substances which saturate within the body after their consumption. The liquid which produces the intoxicated behaviour after the drinking is called as *Madya*. The attributes of *Visha* & *Madya* are same. The aim of this project was to study & correlate the concept of acute alcohol intoxication with stages of *Mada*. For that literary review of *Madya* & stages of *Mada* from various *Ayurvedic* text was done. References for concept of alcohol & stages of intoxication in acute alcohol poisoning from books of modern science were collected. All the references were collected & analysed & finally conclusion drawn. Conclusion of this study is when *Madya* is taken in proper dose it will act as *Amrutam* but it is not consumed in proper dose it will act as a *Visa*. According to Ayurveda three stages of *Mada* can be correlate with three stages of acute alcohol poisoning as per modern science.

**Key Words:** Acute alcohol intoxication, *Visha*, *Madya*, *Visha Guna*, *Madya Guna*, *Mada*.

**INTRODUCTION:** *Agadtantra* is one of branch of *Ashtang Ayurveda* which deals with detailed study of *Visa (Poison)*. The word *Agadtantra* is derived from two words *Agad* & *Tantra*. *Agad* itself is derived from *Ach* & *Gad*. *Gada* means disease, uneasiness, pain or morbid conditions. *Agada* means the pharmaceuticals which are used as an antidote to combat the effect of these poisons. The one which pervade the whole body immediately after ingestion is called as *Visa*. According to the *Acharya charka* the substance which causes sadness to the world is called as *Visa*. In the days of yore, while the ocean was being stirred by the gods & the demons for gaining *Ambrosia*. Along with ambrosia *Visa* & other twelve factors (*Ratna*) were invented. *Madya* was also one of them. The origin of *Visa* & *Amrta* are same. If poison is used in therapeutic doses it acts like *Amrutam*. So

it is also called as *Amrutam*. If *Visa* is consumed in quantified dose it acts like *Amrutam* & if it is consumed in non-specified dose even *Amrut* will act like *visa*<sup>1</sup>

The action of this *Visa* depends upon its *Guna*. Likewise this rule is applicable for all *Dravyas*. So it is also applicable to *Madya*. The *Guna* of *Visha* & *Madya* are same. Accordingly if *Madya* is consumed in proper dose it will act as *Amrutam* but it is not consumed in proper dose it will act as a *Visa*. The drink which produces intoxicated behaviour on consumption is called as *Madya*.<sup>2</sup> *Mada* means addiction, lusty or madness. The word *Madya* is derived from the root word “*Mad*” with suffix “*Yat*” which could be defined as “*Madhyati Janonena Iti*” means after consumption which makes the person to lose his sense is called *Madya*. According to the *Sharangdhar Samhita* the drug

possessing *Tamoguna* predominantly cause derangement of the mind called as “*Madakari*”<sup>3</sup>

As per Ayurveda the drink which creates influence on actions, behaviour, speech & thinking of a person is called *Madya*. According to the modern science the alcohol come under inebriant type of poison. The term inebriant refers to any substance that intoxicates i.e. induces mental confusion, light headness, disorientation & drowsiness. The term ‘Alcohol’ is derived from the Arab word “Alpohi” means to “redden the eyes”. Alcoholic beverages have been used since prehistoric period. It became central in the most valued personal & social ceremonies like births, marriages, crowning, worships, hospitality, war or peace making & funerals. Sumerian physicians prescribed beer to their patients, the Egyptian doctors included beer or wine in about 15% of their prescriptions. In the middle ages Europeans learned the method of distillation from Arabs & believed that alcohol was the long slought elixir of life. In Greek culture the wine god “Bacchus” was most popular & the festival celebrated was known as Bacchanalia.

An increasing rate of consumption of alcohol is a major problem with extensive, legal, social, moral, ethical & even political ramifications & consequences. Indiscriminate & repeated use of alcohol produces gradual, physical & moral deterioration of the individuals & also leads to crime or perversions. The human miseries are suffering from the excessive use of alcoholic drinks are unfathomable in terms of illness, disability & death, decreased productivity, accidents, crime, family disorientation, economic & psychological hardships in all classes of

the society. The hard core alcoholics invokes sufficient troubles for themselves, their families, their employers, their occupational & social associates & their communities. This study was little effort to explain & highlights the merits, demerits, acute alcohol poisoning in *Ayurvedic* Perspective literary. By this study now we can explain the stages of acute alcohol poisoning in terms of Ayurveda.

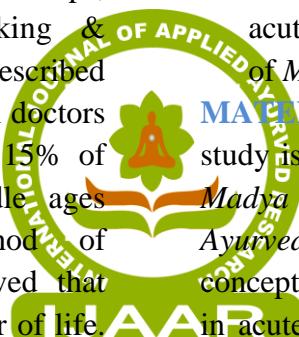
#### **AIM & OBJECTIVES:**

- ❖ To study the concept of *Madya* according to the Ayurveda.
- ❖ To study the stages of *Mada*.
- ❖ To study the stages of acute alcohol intoxication as described in modern science.
- ❖ To study & correlate the concept of acute alcohol intoxication with stages of *Mada*

**MATERIALS & METHODS:** The whole study is based upon the literary review of *Madya* & stages of *Mada* from various *Ayurvedic* classics and also search for concept of alcohol & stages of intoxication in acute alcohol poisoning from books of modern science. All the references were collected, sorted & discussed to drawn fruitful conclusion.

**TYPE OF STUDY:** Conceptual Study.

**REVIEW OF LITERATURE:** Acharya Sushruta mentioned qualities of *Visa* as *Ruksha*, *Ushna*, *Teekshna*, *Sukshma*, *Aashu*, *Vyavayee*, *Vikaasee*, *Vishada*, *Laghu* & *Apakee*.<sup>4</sup> The qualities of *Madya* are *Ushna*, *Teekshna*, *Sukshma*, *Vishada*, *Ruksha*, *Aashukari*, *Vyavaayee* & *Vikasee*.<sup>5</sup> the properties vitiating tridosa observed in poisons are also found in wine with the only difference that they are more potent in poison.<sup>6</sup> Therefore consumption of alcohol in large quantity will produce poisonous effect on the body.



### CLASSIFICATION OF VISHA GUNA:

Sr.no	Charaka	Sushruta	Vagbhata	Sharangadhar
1	Laghu	Laghu	Laghu	-----
2	Ruksha	Ruksha	Ruksha	-----
3	Aashu	Aashu	Aashukarita	-----
4	Vishad	Vishad	Vishad	-----
5	Vyavaye	Vyavavaye	Vyavaye	Vyavaye
6	Tikshna	Tikshna	Tikshna	-----
7	Vikasi	Vikas	Vikasi	Vikasi
8	Sukshma	Sukshma	Sukshma	Sukshma
9	Ushna	Ushna	. Ushna	Aganeya
10	Anirdeshyaraasa	-----	Avaka Rasa	-----
11	-----	Apaki	Vishampaki	-----
12	-----	-----	-----	Chedi
13	-----	-----	-----	Medawaham
14	-----	-----	-----	Yogwahi
15	-----	-----	-----	Jivithara

### CLASSIFICATION OF MADAYA GUNA:

Sr. No.	Charaka	Sushruta	Vagbhata	Bhavprakash	Yogratnakar
1	Laghu	-----	Laghu	Laghu	Laghu
2	Ushna	Ushna	Ushna	Ushna	Ushna
3	Tikshna	Tikshna	Tikshna	Tikshna	Tikshna
4	Sukshma	Sukshma	Sukshma	Sukshma	Sukshma
5	Vyavae	Vyavae	Vyavae	Vyavee	Vyavee
6	Ashukari	Ashukari	Ashukari	Ashukari	Ashukari
7	Ruksha	Ruksha	Ruksha	Ruksha	Ruksha
8	Vikasi	Vikasi	Vikasi	Vikasi	Vikasi
9	Vishad	Vishad	Vishda	Vishda	Vishda
10	Amla	-----	Amla	Amla	Amla

**Merits & Demerits of Madya:** Wine made up of many ingredients possessed of many properties & actions & characterised by intoxication has both merits & demerits.

**Merits:** *Madya* consumed in appropriate manner gives pleasant feeling & produces excitement, dynamism, gladness, corpulence, freedom from disorders, sexual potency & strength. *Madya* improves relish & appetite, is cordial, promote voice & complexion. It brings feeling of refreshment, perfuctance, strength & removes fear, grief & fatigue. It is hypnotic for the sleepless, raise voice of

dumb, awakens those who oversleep, and removes constipation in those suffering therefrom & those pained with corporal punishment or imprisonment. Even the disorders caused by wine & counteracted by wine itself. Wine used properly is the resting place for the living people who are inflicted with intense pain & marred with grief.<sup>7</sup>

**Demerits:** The person addicted does not differentiate between the right & wrong, happiness & unhappiness, good & bad, suitable & unsuitable, he does not know how to behave & take the wine.<sup>8</sup> Wine

creates great agitation of mind as a terrific storm does to the tree on river bank. The fools overcome by rajas & tamas take addiction to wine which has great drawback & is severely toxic as pleasure.<sup>9</sup>

The wine addiction produces confusion, fear, grief, anger, death & disease like insanity, intoxication, narcosis, epilepsy & convulsions. The

#### COMPARISION OF VISHA, MADYA & OJA GUNA:

Sr.no.	Visha Guna	Madya Guna	Oja Guna
1	Ruksha	Ruksha	Snigdha
2	Ushna	Ushna	Sheeta
3	Tikshna	Tikshna	Mrudu
4	Sukshma	Sukshma	Bahal
5	Ashu	Ashu	Prasanna
6	Vyavaee	Vyavaee	Sthir
7	Vikasi	Vikasi	Shalkshna
8	Vishda		Picchil
9	Laghu	Laghu	Guru
10	Anirdeshya Ras	Amla	Madhur

**According to the Acharya Charak the effect of properties is as follows:** Heaviness (*Guru*) by lightness (*Laghu*), Coldness (*Sheet*) by hotness (*Ushna*), Sweetness (*Madhur*) by sourness (*Amla*), Softness (*Mrudu*) by sharpness (*Teekshna*), Clarity (*Prasad*) by quick action (*Ashu*), Unctuousness (*Snigdha*) by roughness (*Ruksha*), Stability (*Sthir*) by quick absorption (*Vyayai*), Smoothness (*Shalkshna*) by depressant (*Vikasee*) action, Sliminess (*Picchil*) by non-sliminess (*Vishda*), Viscosity (*Sandra*) by subtleness (*Sukshma*)

Thus *Madya* due to its opposite qualities of *Ojas* disturb the mind (*Satavam*) which is the seat of *Ojas* & produces narcosis.<sup>11</sup> It is like nectar for that who drinks according to the prescribed method, in proper quantity, in proper time, with wholesome food, according to strength & with exhilaration.<sup>12</sup> On the

wine which is responsible for the derangement of memory, though composed of other good qualities is totally contraindicated for the consumption.<sup>10</sup>

***Madya prabhava:*** *Madya* having entered in to the heart counteracts the ten properties of *Ojas* with its corresponding ten properties & thus upsets the mind which ultimely give rise to mental distortions.

#### COMPARISION OF VISHA, MADYA & OJA GUNA:

contrary it acts like poison for that who indulges in drinking wholesome wine whatever is presented observing rough regimens & physical exertion constantly<sup>13</sup> When the heart is afflicted by the excessive intake of wine exerts the features like exhilaration, thirst, enjoyment, happiness & other peculiar rajas & *Tamas* mental aberration arise culminating in unconsciousness. This derangement caused by wine is called as *Vibhrama* or *Mada*.

***STAGES OF MADA:*** As the qualities of poison & *Madya* are the same. Hence the unscientific consumption of *Madya* creates three stages of intoxication. Whereas *Madavnidana* described four stages.

The first stage of intoxication starts when the heart is stimulated but the *Ojas* is not affected, the second stage comes when *Ojas* is damaged & the third stage comes when *Ojas* is damaged severly.<sup>14</sup>

**First stage (Pratham Mada):** In this first stage of *Mada* the intellect (*Buddhi*) & memory (*Smruti*) of a person work more efficiently. The person would be more inclined towards sexual acts there will be an increase in the seminal fluid, more pleasure, loud speech.<sup>15</sup> It exerts the features like exhilaration, pleasure, interest in food & drinks, invokes in instrumental & vocal music, humour & stories. It gives sound sleep & fresh awaking, does not affects intellect, memory & perception by senses. Thus it is a stage of inducing pleasure.<sup>16</sup>

**Second stage (Dwitiya Mada) :** In the middle stage the intellect, memory & speech of a person are affected further. The person often recollects & forgets the things, he has indistinct speech & voice, simultaneously speaks sense & nonsense. His movements, posture, drinking, eating & talking all are incoherent & funny.<sup>17</sup>

The second & third stages described by *Madavnidana* can be taken into second stage which is described by *Acharya Charka*.

In this stage (second & third) the person indulges in irrelevant functions of wisdom (*Buddhi*), memory (*Smrti*), speech (*Vak*) as well as other body activities. His appearance & behaviour seems to be like psychic, drowsy & lazy. He lose his self-control, discrimination power of do's & don'ts. He disregards the elders, eating the noneatables, thus his conscious gets lost & due to the influence of *Madya* the person expels the secretes of mind.<sup>18</sup>

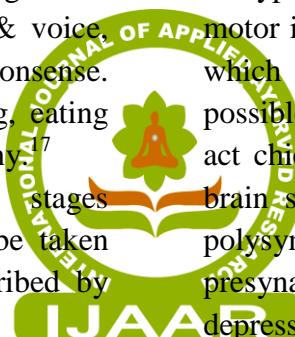
**Third stage (Tritiya Mada):** Reaching the third stage of intoxication the person becomes motionless like a cut wood, his mind being covered with narcosis & confusion, though living he appears as dead. He neither perceives the pleasurable senses nor does he recognise his friends.

He is soon deprived of all happiness for which he had taken alcohol. In this stage of intoxication he loses the very sense of distinction of rightful, happy & useful items from the wrong, miserable & harmful ones respectively.<sup>19</sup> These features were described in the fourth stage of *Mada* by *Madavnidana*.<sup>20</sup>

### **MODERN REVIEW OF ACUTE ALCOHOL INTOXICATION:**

In modern science alcohol is chiefly important in medicine because of its misuse. Alcohol acts on the central nervous system in the manner of general anaesthetics; it enhances GABA-stimulated flux of chloride through receptor gated ion channels, a receptor subtype effect that may involve in the motor impairment caused by alcohol, & to which development of antagonists is possible. Alcohol in ordinary doses, may act chiefly on arousal mechanisms of the brain stem reticular formation, inhibiting polysynaptic function & enhancing presynaptic inhibition. Direct cortical depression probably only occurs with high doses. With increasing doses the subject passes through all the stages of general anaesthesia.<sup>21</sup> Alcohol intoxication is state associated with behavioural, psychomotor & cognitive changes in an individual. Acute alcohol intoxication is also called as acute alcohol poisoning or inebriation. Consumption of alcohol produces following stages-

**Stage of excitement:** There is first feeling of wellbeing & ascertain slight excitation. The actions, speech & emotions are less restrained due to lowering of the inhibition normally exercised by the higher centres of the brain. There is increased confidence & lack of self-control. The person may disclose secretes. Normal good manners are forgotten. The neat & tidy are careless



in their dress. There may be excitation of sexual desire. Mental concentration is poor & judgement impaired. The faculty of attention deteriorates rapidly. Recall memory is often markedly disturbed in which the person cannot accurately recall certain situations or even names of individuals he has known for years. The reaction time of individuals becomes impaired. The emotions are affected. Alcohol increases the desire for sex but markedly impairs the performance, often resulting in prolonged intercourse without ejaculation.<sup>22</sup>

*Stage of in-coordination:* The sense perceptions & skilled movements are affected. The person become morose, gay, irritable, excitable, quarrelsome & sleepy. There is certain clumsiness & incoordination in the fine & more skilled movement as shown by slight alteration in speech & in the fine finger movements. The breath smells of alcohol. The face is flushed & pulse is accelerated sense of touch, taste, smell & hearing are diminished. There is increase in reaction time.<sup>23</sup> The pupils are dilated.

*Stage of coma:* In this stage, the motor & sensory cells are deeply affected, speech becomes thick & slurring, co-ordination is markedly affected causing the patient become giddy, stagger & possibly to fall. Finally a stage is reached where the subject passes into a state of coma with stertorous breathing. The pulse is rapid & temperature subnormal. Alcohol causes mydriasis (dilatation of pupil) in the initial stages but as person lands in stage of coma, the pupil becomes constricted(miosis). The McEwan sign is positive in coma pinching of the skin or light slapping of a person causes the constricted pupil of person to dilated.

Unless large quantities have been absorbed in a short time, recovery takes place. With recovery the coma gradually lightens in to a deep sleep & the patient usually recovers in 8 to 10 hours & wakes up with acute depression, nausea & severe headache. If coma continuous for more than 5 hours, the prognosis is likely to worse. Prolonged coma due to alcohol may cause irreversible hypoxic brain damage & death.

#### ACUTE ALCOHOL INTOXICATION<sup>24</sup>

Blood alcohol conc.mg/100ml	Stage of intoxication	Clinical features
0-50	Sobriety	Near normal behaviour
50-100	Euphoria	Feeling of wellbeing, sociability, talkativeness, decreased inhibitions, fine movements affected.
100-150	Excitement	Emotional instability, impairment of memory & comprehension, increased reaction time, mild ataxia.
150-200	Confusion	Disorientation, confusion, vertigo, diplopia, ataxia, slurred speech, staggering gait.
200-300	Stupor	General inertia, diminished response to stimuli, inability to stand or walk, vomiting.
300-500	Coma	Unconsciousness, abolished reflexes, subnormal temperature, incontinence of urine faces, respiratory compromise.
>500	Death	Death due to respiratory failure.

**DISCUSSION:** In *Ayurveda* according to the *Acharya Charaka* three stages of *Mada* are mentioned while *Madhvnidana* described four stages. In modern science three stages are seen in acute alcohol poisoning.

In *Prathma Mada* there is excitement, pleasure, interest in food & drinks invokes in instrumental & vocal music, humour & stories. According to the *Acharya Sushrut* in this stage the person would be more inclined towards sexual acts there will be an increase in the seminal fluid. Similar description is also found in modern medicine. Modern science entitled this stage as stage of excitement. In this stage person will be euphoric, talkative, loss of self-control and rude behaviour is seen. When person drinks alcohol, the alcohol will stimulate stomach's acidic secretion that are intended to digest protein molecules. Intravenous, oral, and intragastric alcohol at a concentration of up to 5% increases acid secretion principally by stimulating the secretion of gastrin and to a lesser extent by a direct effect on the parietal cells.<sup>25</sup> so that appetite is increased. He may perform dancing, thrilling shows, carelessly & fearlessly. While modern science states that Alcohol increases the desire for sex but markedly impairs the performance, often resulting in prolonged intercourse without ejaculation in this stage. This is due to loss of inhibition & restraint.

In *Diwtiya Mada* the intellect, memory & speech of a person are affected further. The person often recollects & forgets the things, he has indistinct speech & voice, simultaneously speaks sense & nonsense. His movements, posture, drinking, eating & talking all are

incoherent & funny. Modern science name this stage as stage of incoordination. This stage is also named as stage of confusion. In this stage there is further depression of higher centres of the brain. The sense perceptions & skilled movements are affected. The person become morose, gay, irritable, excitable, quarrelsome & sleepy. There is certain clumsiness & incoordination in the fine & more skilled movement as shown by slight alteration in speech & in the fine finger movements. Sense of touch, taste, smell & hearing are diminished. The memory for recent events is impaired<sup>26</sup>

In *Tritya Mada* the person lies on the ground, movement less like cadaver, a greater sinner than the one who dead.<sup>27</sup>

This resembles to third stage of acute alcohol intoxication which is called as stage of coma. In this stage, the motor & sensory cells are deeply affected, speech becomes thick & slurring, co-ordination is markedly affected causing the patient become giddy, stagger & possibly to fall. Finally a stage is reached where the subject passes into a state of coma.

**CONCLUSION:** From above literature & discussion it is concluded that *Ayurveda* explained the concept of *Madya*, stages of *Mada* in details. The stages of acute alcohol intoxication in modern toxicology is also expounded extensively. The symptoms in the stages of *Mada* according to *Charaka* is in some extent similar to the symptoms in stages of acute alcohol intoxication. So concept of the stages of *Mada* can be correlate with the concept of acute alcohol intoxication literary.

**Limitation:** The study was conceptual & literary review type so symptoms of stages in *Mada* is correlate with the concept of acute alcohol intoxication literary.

**Recommendation for future research:** This conceptual study was a sincere effort to study & correlate the concept of acute alcohol intoxication with stages of *Mada* literary. Suggestion related to the study are welcome. This study can be carried out on the patient of acute alcohol intoxication so for that clinical study can be done.

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