

DIAGNOSIS AND MANAGEMENT OF CHRONIC TOXICITY OF ALCOHOL AND ITS WITHDRAWAL THROUGH AYURVEDA**Dr. Sandeep Charak*¹, Dr. Monika Sharma² and Dr. Sharad M. Porte³**^{1,2}PG, Scholer Deptt. of Agad Tantra National Institute of Ayurveda Jaipur (Raj).³Assistant Proffesor, Deptt. of Agad Tantra National Institute of Ayurveda Jaipur (Raj).Article Received on
09 August 2017,Revised on 30 August 2017,
Accepted on 20 Sep. 2017

DOI: 10.20959/wjpr201712-9590

Corresponding Author*Dr. Sandeep Charak**PG, Scholer Deptt. of Agad
Tantra National Institute of
Ayurveda Jaipur (Raj).**ABSTRACT**

Alcohol, acute alcoholism, chronic alcoholism and alcohol withdrawal has been mentioned in Ayurveda under the heading of Madhya, mada, madatya and panapkaram respectively. Chronic toxicity of alcohol has been classified into vataj, pittaj, kaphaj and tridoshaj madatya with its clinical manifestation in Ayurveda while in modern science it is described under the systemic toxicity of gastrointestinal tract, nervous system, cardiovascular system, hematological system and reproductive system. Acharya kashyap has described panapkarm which means sudden stop of alcohol by chronic drinkers, which is similar to alcohol

withdrawal syndrom. Vata and pitta dosha vikriti along with vatavaha, sanghavaha, annavaha and rasavaha srotas vikriti will be found in chronic toxicity of alcohol, while in alcohol withdrawal syndrome vikriti of all the three doshas and two manas doshas along with annavaha, vatavaha, manovaha swedavaha, and sanghyavaha srotas will be found. Trividh pariksha and ashtvidha pariksha should be done to rule out severity of chronic toxicity and withdrawal before treatment. Alcohol withdrawal should be managed by using psychological counseling, anticraving, antianxiety agents and other symptomatic drugs. Shirodhara, shiropicchu, shiroabhyang, Hastabhyang and Padaabhyang, Yoga and meditation these procedures will be prove beneficial during the management of alcohol withdrawal. The toxicity will be manage by using appropriate antitoxic herbo-mineral drugs for concern disease. Appropriate pathya will be proved beneficial to decrease the withdrawal and toxicity of alcohol. Thus Ayurveda may play a major role to manage chronic toxicity of alcohol and its withdrawal.

KEYWORDS: Madatya, Alcoholism, alcohol withdrawal etc.

1-INTRODUCTION

Alcoholism is a very big rising problem in the world. According to W.H.O 38.3% of the global population consumed alcohol. Around 30% of the total population in India consumed alcohol in the year 2010, 93% of the alcohol was consumed in the form of spirits, followed by beer with 7% and less than 1% of the population consumed wine. It was revealed that over 11% of the population in India indulge in heavy or binge drinking, the global figure stood at 16%. Alcohol, acute alcoholism, chronic alcoholism and alcohol withdrawal has been mentioned in Ayurveda under the heading of Madhya, mada, madatya and panapkaram respectively. Though alcohol addiction its chronic toxicity, withdrawal and its management has been found in Ayurveda, the opinion and principles of diagnosis and management has been scattered and varies from text to text. There is also need to highlight some new problems along with its management which are not mentioned in Ayurveda. This article tries to evaluate, elaborate and discuss the diagnostic methods of alcohol addiction and withdrawals.

2-AIMS AND OBJECTIVE

- 1- To evaluate, elaborate and discussion of diagnostic methods of alcohol addiction and withdrawals.
- 2- To evaluate, elaborate and discussion of standard Ayurvedic protocol for the management of alcohol addiction and withdrawal.

3-MATERIAL AND METHODS

The material related to alcohol addiction and withdrawal was collected from *Brihatrayi* & its commentaries, *Laghutrayi* and other concerned textbook of Ayurveda. Text book of modern medicines and index peer review medical journals was referred to collected concerned matter. The clinical practical knowledge of diagnosis and management of alcohol addiction and withdrawal was experience from Ayurvedic de-addiction unit in NIA. The collected matter from Ayurvedic/Modern medicine and medical journals were compiled and standard Ayurvedic protocol for diagnosis and management alcohol addiction and withdrawal were developed.

4-Chronic toxicity of Alcohol (Madya) according to Ayurveda by Various Acharya

Table No:-1.

Type	Clinical symptoms	Charak ⁴ / Madav nidan	Vagbhat ^[5]	Sushrut ^[6]
Vataj Madatyay/ Panataya	Hikka.(Hiccup)	+	-	-
	Shwas(Dyspnoea)	+	+	-
	Shir-kampa.(Headache)	+	+	-
	Parshva-shool(Backache)	+	-	-
	Ratri-jagran(Insomia)	+	+	-
	Pralap(Delirium)	+	+	-
	Stambha(Stiffness)	-	-	+
	Angamarda(Bodyache)	-	-	+
	Toda(Pain)	-	-	+
	Kamp(Tremers)	-	-	+
Pitaja Madatyaya/ Panataya	Trushhna (Thirst)	+	+	-
	Daha(Burning sensation)	+	+	+
	Jwara(Fever)	+	+	-
	Sweda(Sweating)	+	+	+
	Atisar(Diarrohea)	+	+	-
	Vibhram(Hallicuations)	+	+	-
	Pita-varna(Yellow discolouration)	+	+	-
	Mukha-shoshha(Thirst)	-	-	+
	Murccha(Syncope)	-	-	+
	Vadan-lochan	-	-	+
Pralap(Delirium)	-	-	+	
Kaphaj Madatyaya/ Panataya	Chhardi(Vommiting)	+	+	-
	Arochak(Dyspepsia)	+	-	-
	Hrulasa(Cardiac pain)	+	+	-
	Tandra (Drowsiness)	+	+	-
	Astya-mitya	+	-	-
	Gaurav (Heavyness)	+	+	-
	Darda	-	+	-
	Vamathu(vomiting)	-	-	+
	Shita-Kapha(Shivering)	-	-	+
	Praseka(Salivation)	-	-	+
Tridoshaj Madatyaya/ Panataya	Sarirdukha(Bodyache)	+	+	-
	Samoha(Syncope)	+	+	-
	Hrudya-vyatha(cardic pain)	+	+	-
	Aruchi (Dyspepsia)	+	-	-
	Trushhna.(Thirst)	+	+	-
	Jwara (Fever)	+	+	-

Table No. 2: Parmada, Panajirna, Panavibhrama & Panapkrama according to various Acharya.

S.N.	Type	Susrut/ Nidan	Kashypa
1.	Paramada ^[7]	Increase of Kapha Anga-guruta Virasyata Tandra. Arochak Trushhna Shir-ruja Sandhi-ruja	----
2)	Panajirna ^[8]	Adhman Undiranam Vidaha Ajirna of Madya.	----
3)	Pana vibhrama ^[9-10]	Hruda-toda Gatra-Toda Kapha-strav Kanthadhuma Murchha Vami Jwar Shir-ruja Pradaha Sura-dweshha.	The Person Who take narcotic (Vibhrant) alcohol produced. Panavibhram.
4)	Panapkram ^[11]	----	The chronic disorder produced when chronic drinker stop to drink alcohol suddenly.

Panapkram (Alcohol withdrol syndrom) - The Chronic Drinker who has not get *Madya* produced panapkram It is similar to alcohol withdrawl syndrom. Acharya kashyap is only one who has described the panapkram

5-Chronic toxicity of Alcohol as per modern science

5.1- Central Nervous System:^[12]

The effect of alcohol on the nervous system is even more pronounced among alcohol-dependent individuals. Chronic high doses cause *peripheral neuropathy* in 5 to 15% of alcoholics: patients experience bilateral limb numbness, tingling, and paresthesias, all of which are more pronounced distally. *Wernicke's syndrome* (ophthalmoparesis, ataxia, and encephalopathy) and *Korsakoff's syndrome* are seen in 10% of alcoholics as the result of thiamine deficiency, especially in persons with transketolase deficiency. Approximately 1% of alcoholics develop *cerebellar degeneration*, a syndrome of progressive unsteady stance and gait often accompanied by mild nystagmus; neuroimaging studies reveal atrophy of the

cerebellar vermis. Alcoholics can manifest severe *cognitive problems* including impairment in recent and remote memory for weeks to months after an alcoholic binge.

5.2-The Gastrointestinal System

- 1) **Esophagus and Stomach:**^[13] Chronic heavy drinking, if associated with violent vomiting, can produce a Mallory- Weiss lesion, a longitudinal tear in the mucosa at the gastroesophageal junction.
- 2) **Liver:**^[14] The pathology of alcoholic liver injury comprises three major lesions, rarely existing in a pure form: (1) fatty liver, (2) alcoholic hepatitis, and (3) cirrhosis. Fatty liver is present in over 90% of binge and chronic drinkers. A much smaller percentage of heavy drinkers will progress to alcoholic hepatitis, thought to be a precursor to cirrhosis.

i) Fatty Liver

There are often no symptoms or signs. Vague abdominal symptoms of nausea, vomiting and diarrhoea are due to the more general effects of alcohol on the gastrointestinal tract. Hepatomegaly, sometimes huge, can occur together with other features of chronic liver disease.

ii) Alcoholic Hepatitis

Patients with acute alcoholic hepatitis typically present with jaundice, right upper quadrant abdominal pain, fever, and hepatic failure, although patients may even be asymptomatic. A tender enlarged liver, jaundice, and an arterial bruit over the liver can also be observed. Protein-calorie malnutrition, parotid gland enlargement, spider angiomas, and testicular atrophy may also be present.

iii) Alcoholic Cirrhosis

This represents the final stage of liver disease from alcohol abuse. Patients with alcoholic cirrhosis can be well compensated or have symptoms and signs of portal hypertension including ascites, peripheral edema, increasing icterus, confusion, and variceal hemorrhage.

5.3- Cardio Vascular System^[15]

Chronic heavy drinking can cause cardiomyopathy with symptoms ranging from unexplained arrhythmias in the presence of left ventricular impairment to heart failure with dilation of all four heart chambers and hypocontractility of heart muscle.

5.4-Blood-Producing Systems^[16]

Chronic toxicity of alcohol affect the stem cells that produce the red blood components, significantly increasing the average size of the red cell and can impair the production and the efficiency of blood platelets.

5.5-Skeletal muscle

Most patients with chronic alcoholism show electromyographical changes, and many show evidence of a skeletal myopathy.

5.6-Sexual functioning^[17]

The chronic alcoholic men may show irreversible testicular atrophy with concomitant shrinkage of the seminiferous tubules and loss of sperm cells.

Table No. 3: Chronic toxicity^[18] as per modern science and its effect on dosha, and srotas.

Sno.	Disorder	Symptoms	Dosha Dushti	Srota Dushti
1	Peripheral Neuropathy	Numbness	Vata dosha	Vata vaha Srotas
		Tingling and burning sensation		
		Muscle spasm, cramps and weakness		
		Loss of muscle functioning and movement disorders		
2	Wernicke,s Syndrome	Confusion and loss of mental activity	Vata dosha	Sanghyavaha Srotas
		Loss of muscle coordination(Ataxia)that can cause leg tremors		
		Vision changes such as abnormal eye movement, double vision, eye lid dropping		
3	Korsakoff Syndrome	Loss of memory and hallucinations.	Vata dosha	Sanghyavaha Srotas
4	Liver disorder	Jaundice, anorexia vomiting hepatomegaly, abdominal pain, ictrus, tenderness in rt hypochondrium region	Pitta dosha	Anna vaha /Rasavaha Srotas
5	Mallory-weiss syndrome	Violent vomiting and severe burning pain in epigastric region	Pitta dosha	Anna vaha Srotas

6-Alcohol Addiction

Alcohol addiction, also called alcoholism, alcohol use disorder and alcohol dependence is a serious chronic disease in which patient is physically and mentally depend on alcohol. Symptoms of alcohol addiction include drinking alone, becoming violent when drinking, missing work or school, hiding alcohol use, and shaking after periods of not drinking.

7- Withdrawal Syndrome

ICD-10 defines^[19] a withdrawal state as

Withdrawal state: A group of symptoms of variable clustering and severity occurring on absolute or relative withdrawal of a psychoactive substance after persistent use of that substance. The onset and course of the withdrawal state are time-limited and are related to the type of psychoactive substance and dose being used immediately before cessation or reduction of use.

Table No. 4: Clinical features of alcohol withdrawl²⁰ as per modern science and its effect on dosha- srotas.

S.no	Symptoms	Dosha Dushti	Srota Dushti
1	Nausea and Vomitting	Kapha Dosha	Anna vaha Srotas
2	Tremors	Vatta Dosha	Vatta vaha Srotas
3	Anxiety	Raj Dosha	Manovaha Srotas
4	Agitation	Raj Dosha	Manovaha Srotas
5	Pain in muscle	Vata Dosha	Vatavaha Srotas
6	Cold sweat	Pitta Dosha	Swedhvaha Srotas
7	Insomnia	Vata Dosha	Sanghyavaha Srotas
8	Loss of Appetite	Kapha Dosha	Annavaha Srotas
9	Restlessness	Raj Dosha	Manhavaha Srotas
10	Hallucination	Raj Dosha	Manhavaha Srotas

8-Examination of patients of withdrawal according to Ayurveda

8.1-Trividha Pariksha

Trividha pariksha will be done in alcohol addicted patient to rule out the chronic toxicity of alcohol. Darshan, Sparshan, and Parshan are the trividh pariksha which are described in Ayurveda to help in the diagnosis.

- i) **Darshan Pariksha (Inspection):** In alcohol addicted patients the Ictrius and yellowish discolouration of skin nail bed and eyes will be examine by means of Darshan Pariksha to rule out jaundice.
- ii) **Sparshan (Palpation):** In alcohol addicted patient the tenderness in rt. Hypochondrium and epigastrium region along with hepatomegaly can be ruled out through sparshan

pariksha

iii) Parshan (Question): Parshan pariksha will be done by asking the following questions to rule out the chronic toxicity of addiction.

- Whether he feel numbness in legs and hands?
- Whether he feel tingling and burning sensation?
- Whether any Loss of muscle functioning, movement disorders and coordination in muscle that can cause leg tremors?
- Whether any Loss of mental activity or memory loss?
- Whether any changes in vision such as abnormal eye movement, double vision and eyelid dropping?
- Whether patients have any hallucination?
- Whether he feels Anorexia, vomiting, burning pain in epigastric region?

8.2- Ashtavidha Pariksha

In Ayurveda one more important pariksha named as Ashtavidha pariksha is mentioned which helps us in the diagnosis and prognosis of chronic toxicity in alcohol addiction patients. These are Naddi, Mootra, Mala, Jeewha, Shabd, Sparsh, Drik and Akarti.

- Naddi:-** In naddi pariksha we examine the naddi (pulse) of the patient. Irregular nature of naddi (pulse) will be observed in alcohol addicted patients.
- Mootra:-** Most of the time in chronic alcohol addicted patients the yellowish discoloration of the mootra (urine) will be found.
- Mala:-** The alcohol addicted patients mala (stool) is pichal, durgandhayukt (foul smell) with mucus
- Jeewha:-** The jeewha (tongue) is coated in most of the patients having alcohol addiction.
- Shabad:-** The patient suffering with chronic toxicity of alcohol have slurred speech in most of the cases.
- Sparsh:-** Sparsh pariksha is done to rule out hepatomegaly, pain and tenderness of abdomen. The body temperature is also examined through sparsh pariksha.
- Drik (Neetra):-** In chronic alcohol patient yellowish discoloration of neetra (eyes) will be found.
- Akariti:-** The krishta is found in Most of the alcohol addicted patients due to weight loss.

Similarly chronic toxicity of alcohol is also examined through Trividh pariksha e.g

- Restlessness, tremors, anxiety and agitation will be observed by using Darshan pariksha
- Sparshan pariksha we examine pain in muscles and cold sweating.
- Parshan pariksha we examine nausea, vomiting, loss of appetite and hallucinations.

9-Ayurvedic management of alcohol withdrawal patients

9.1 -Psychological Counseling

Psychological counseling is a main part of the treatment it is required in the each steps of treatment up to the rehabilitation. As patient of addiction have somatic as well as psychological health consequences and social and economic loss. It is done on five levels –

- i) Individual Counselling** – It is done by explaining the psychological hazards caused by addiction to the patient. We can do both audio video counseling by showing the videos and photographs that how addiction going to effect the various organs and system of the body to make phobia of alcohol addiction to the patient.
- ii) Group counselling-** All the patients of alcohol addiction should be collected in one chamber and details of chronic hazards should be explained by using audio video counseling.
- iii) Family counselling-** As patient of alcohol addiction has serious social and family consequences thus the family should involve in the counselling and family members help should also be taken to motivate the patient to get rid of alcohol addiction.
- iv) Motivational counselling-** Patient of the addiction should be motivated through religious teaching and her concentration of mind should be diverted from addiction to the religious side.
- v) Mind diverting-** Patient should be kept busy by giving books to read and games to play so to keep him busy that he is not thinking about taking alcohol.

9.2- Drug management of alcohol withdrawal

Table No 5: Use of Ayurvedic drugs to manage alcohol withdrawal.

S.NO	Symptoms	Drug	Dose	Duration
1	Craving	Indian kutuju ^[21]	5 gm churan twice daily	1 month
2	Anxiety/Agitation	Manasmitra Vatak ^[22]	2 tab twice daily	1 month
3	Insomnia	Brahmiyukt Shankpushpi ^[23]	10-15ml at bed time	1 month
4	Nausea/vomiting Loss of Appetite	Lavanbhaskar churan ^[24]	5 gm churan twice daily	1 month
5	Weakness and pain in muscles	Ashwagandha churan ^[25]	5 gm churan twice daily	1 month

9.3-Procedure

Ayurvedic procedure and yoga to manage alcohol withdrawal

- I) The sleep disturbance is one of the major problem of alcohol addicted patients so each n every effort should be made to deal with this problem. Following procedures are helpful for this purpose
- Shirodhara:- The brahmi yukt faant is used for shirodhara to relives the sleep disturbance.
 - Shiropicchu and Shiroabhyang:- Brahmi oil is used for shiropicchu and shiroabhyang.
 - Hastabhyang and Padaabhyang:- Hastabhyang and Padaabhyang with jatamamsi taila relives sleep disturbance.
- II) Abhyang:- The abhyang is done for relieving pain in muscles and gernalized weakness. Mahanaryan taila or Mahabalaadi taila is used for abhyang
- III) Yoga and Meditation:-Yoga and meditation proves very helpfull in reliving the mental stress, restlessness and.

9.4- Management of chronic toxicity of Alcohol

Table No. 6: Ayurvedic drugs used for management of the chronic toxicity of alcohol.

S.No	Chronic Toxicity	Drug	Dose	Duration
1	Alcoholic Liver disease	Syp M-Liv	10-15 ml twice daily	6 months
2	Alcoholic chronic Pancreatitis	Shool parshman powder.	5gm powder with milk twice daily	1 months
3	Anaemia	Punarnava Mandoor	2 tab twice daily	1 month
4	Mallory-weiss syndrome	Amalpitta Mishran	10-15 ml twice daily	1 month
5	Korsakoff Syndrome and Wernicke,s Syndrome	Jyotishmati oil	15 drops daily in milk	1 month
6	Peripheral Neuropathy	Brihat Vatchintamani Ras	125mg twice daily	1 month

9.5-Pathy apathya (Diet+Working Pattern)**Table No. 7: Shows Pathya (Diet+Working Pattern) useful in the management of alcohol withdrawal and chronic toxicity of alcohol.**

Sr.	Symptom	Coping Strategy
1	Insomnia	Avoid tea, coffee, aerated drinks after 6pm; develop habit of reading books
2	Irritability	Take walk, take bath, relax and talk to friends, listen to favourite music, do breathing exercises/ Yoga.
3	Fatigue	Relax, take naps, increase intake of fluids
4	Lack of Concentration	Plan workload, avoid stress, time management
5	Constipation	Add fiber to your diet through fresh fruits, vegetables etc; drink plenty of fluids
6	Headaches	Drink plenty of fluids, and practice relaxation, eat small snacks
7	Craving	Distract yourself – Drink water, read, exercise, and talk to family members/friends. Remind yourself that the urge will die down in a few minutes
8	Liver toxicity	Distract yourself from eating fried, oily, and fatty and protein rich diet, use reddish and use carbohydrate rich diet and glucose.

10-DISCUSSION

Alcohol, acute alcoholism, chronic alcoholism and alcohol withdrawal has been mentioned in Ayurveda under the heading of Madhya, mada, madatya and panapikaram respectively. Clinical manifestation of chronic toxicity has been described in both modern science in different ways. In Ayurveda the chronic toxicity of alcohol has been described under vataj, pitaj, kaphaj and tridoshaj madhatya, while in modern science it is described under the toxicological pathology of various system including gastrointestinal and nervous system specially. Though the clinical manifestation of panapikaram has not been described in detail, but in Ayurveda the detail description about the sudden stop of alcohol by chronic drinkers leads to lost their control on senses which led to produces various psychosomatic diseases that also exist in today's scenario.^[26] It means that Ayurveda has also mentioned alcohol withdrawal syndrome indirectly which is similar to modern science. The literary Ayurvedic analysis of chronic toxicity of modern science shows the involvement of vata-pitta doshas and pathological disorders (vikriti) in vatavaha, sanghavaha, Anavaha and Rasavaha srotas. Clinically alcohol withdrawal syndrome shows tridoshajanya vikriti where as rajadosha vikriti found in sharir and manas of patient (somatic/ psychological). Generally anavaha, vatavaha, manovaha, swedavaha, sanghavaha srotas will effect during the period of alcohol withdrawal. Trividh pariksha^[27] has important role to rule out diagnosis and severity of chronic toxicity of alcohol. Icterus and yellow discoloration of skin and nail bed should be examined by inspection (darshan pariksha) while hepatomegaly should be rule out through palpation

(sparsh pariksha). By using questioneries (parshan) the severity of dependence and toxicity should be rule out. Ashtwidh pariksha^[28] should be done during regular examination of patient to find out previous or present clinical complaints of patients. Trividha pariksha also can be used to measure the severity of withdrawal effect of alcohol restlessness, Nausea and Vomitting, Tremors, Anxiety, Agitation, Pain in muscle, Cold sweat, Insomnia, Loss of Appetite, and Hallucination. Indian kutuju, manasmitravatak, brahmiyuktshankpuspi, lavanbhaskar churan, Ashwagandha churan will be used effectively to calm down craving, Anxiety/Agitation, insomnia, nausea/vomiting, loss of appetite/weakness and pain in muscle respectively. Shirodhara, shiropicchu by brahmi oil also used to additional effect in sleep disturbance during withdrawl. Abhyang by using mahanaryan tail used to relieving gernalised muscle weakness and termers. Pranayam and yogaasan proved very helpful in relieving the mental stress restlessness and loss of concentration. To manage the toxicity of alcohol is an important and integral part of de-addiction in Ayurveda. The drug Syp M-Liv, Shool parshman powder, Punarnava Mandoor, Amalpitta Mishran, Jyotishmati oil and Brihat Vatchintamani Ras will be helpful to reverse the toxic effect of alcohol in liver disease, Alcoholic chronic Pancreatitis, Anaemia, Mallory-weiss syndrome, Korsakoff Syndrome, Wernicke,s Syndrome and Peripheral Neuropathy respectively. Psychological counselling also will play important role to manage the patients of alcohol dependence and withdrawal. Individual Councelling, Group councelling, Family councelling, Motivational councelling and Mind diverting these are the important types of counseling used during the management of addicted patient.

11-CONCLUSION

Alcoholism, alcohol addiction is major problems in world which effects personal health financial and social development of alcohol addicted patients. Alcohol, alcoholism and withdrawl has been already mentioned in Ayurveda since long ago Ayurveda have potential to manage the patient of alcohol toxicity and addiction by using theraaptic drugs and procedures to calm down withdrawl effect to reverse toxicity and rehabitlation. Thus Ayurveda will play a major role to addiction free world.

REFERENCES

1. PG.Scholer Deptt. of Agad Tantra National Institute of Ayurveda Jaipur (Raj).
2. PG.Scholer Deptt. of Agad Tantra National Institute of Ayurveda Jaipur (Raj).

3. Assistant professor, Deptt. of Agad Tantra National Institute of Ayurveda Jaipur (Raj).
4. Charak samhita, Kashinath shastri et all, Chaukhambha bharti akadmi, reprint 2012, Chikitsa Sthan Ch.24 verse no. 91,94,97,103 PP 680-682.
5. Astangahridayam, Kaviraja Atrideva Gupta et all, Chaukhambha Prakashan, reprint 2012, Nidan Sthan Ch.6 verse 18-20 PP-328.
6. Sushrut samhita, Ambika dutt shastri, Chaukhambha Sanskrit samsthan, reprint2012, Sushrut Uttartantra Ch.47 verse no.18 PP423.
7. Sushrut samhita, Ambika dutt shastri, Chaukhambha Sanskrit samsthan, reprint2012, Sushrut Uttartantra Ch.47 verse no.19 PP425.
8. Sushrut samhita, Ambika dutt shastri, Chaukhambha Sanskrit samsthan, reprint2012, Sushrut Uttartantra Ch.47 verse no.20 PP425.
9. Sushrut samhita, Ambika dutt shastri, Chaukhambha Sanskrit samsthan, reprint2012, Sushrut Uttartantra Ch.47 verse no.21 PP425.
10. Kasyapa samhita, Pandit Hemraj sharma and Sri Satyapala Bhisagacharya Chaukhambha Sanskrit samsthan, reprint2006 Ch.14 Verse no. 5 PP136.
11. Kasyapa samhita, Pandit Hemraj sharma and Sri Satyapala Bhisagacharya Chaukhambha Sanskrit samsthan, reprint2006 Ch.14 Verse no. 5 PP136.
12. Harrison's Principle of Internal Medicine, Denis.L.Kasper, et.al, 16th edition, Hc Graw-Hill Medical publication Divison, New Delhi, 2005, PP2563.
13. Harrison's Principle of Internal Medicine, Denis.L.Kasper, et.al, 16th edition, Hc Graw-Hill Medical publication Divison, New Delhi, 2005, PP2563.
14. Dr.Anshu Malviya, thesis work on A Randomized Controlled Clinical Trial of Pueraria Tuberosa and Herbal Formulation in Alcohol Addiction, 2016.
15. Harrison's Principle of Internal Medicine, Denis. L. Kasper, et.al, 16th edition, Hc Graw-Hill Medical publication Divison, New Delhi, 2005, PP2563.
16. Dr.Anshu Malviya, thesis work on A Randomized Controlled Clinical Trial of Pueraria Tuberosa and Herbal Formulation in Alcohol Addiction, 2016.
17. Harrison's Principle of Internal Medicine, Denis. L. Kasper, et.al, 16th edition, Hc Graw-Hill Medical publication Divison, New Delhi, 2005, PP2563.
18. Harrison's Principle of Internal Medicine, Denis. L. Kasper, et.al, 16th edition, Hc Graw-Hill Medical publication Divison, New Delhi, 2005; PP2563.
19. Dr.Anshu Malviya, thesis work on A Randomized Controlled Clinical Trial of Pueraria Tuberosa and Herbal Formulation in Alcohol Addiction, 2016.
20. Harrison's Principle of Internal Medicine, Denis. L. Kasper, et.al, 16th edition, Hc Graw-

- Hill Medical publication Divison, New Delhi, 2005, PP2563.
21. Dr.Anshu Malviya, thesis work on A Randomized Controlled Clinical Trial of Pueraria Tuberosa and Herbal Formulation in Alcohol Addiction, 2016.
 22. Sashtayogam, Dr. Ramnivas Sharma and Dr. Surinder Sharma, Chaukhambha Sanskrit samsthan, reprint 2012, Gutika parikarn, PP253.
 23. API 2(1): drug no.66 PP167.
 24. Bhaisajya Ratnavali, Govind dass sen, Chaukhambha Sanskrit samsthan, reprint 2012, churan parkarn, PP.
 25. Bhavaprakasa Nighantu commentary by Dr. K.C chunekar edited by Dr.G.S Pandey, Chaukhambha bharti academy, Ch 40 verse no. 8 PP335.
 26. Sharad.M.Porte, Ayurvedic concept of withdrawl and its solution, IJPT, 2(2): PP 41-45.
 27. Charak samhita, Kashinath shastri et all, Chaukhambha bharti akadmi, reprint 2012, Chikitsa Sthan Ch.25 verse no.22, PP700.
 28. Yogratnakar Uttarardha Vishanidan Dushee Visha Rupamaha1-2 Hindi Commentray by Lakshmipati Shastri Chaukhambha Sanskrit samsthan, reprint in 2005 PP 463.