

## DRUG ADDICTION AND AYURVEDIC METHOD OF DE-ADDICTION

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**Abstract: Background** - Addiction is Habitual psychological or physiologic dependence on a substance or practice that is beyond voluntary control. It is a chronic brain disease that causes compulsive substance use despite harmful consequences. Addiction causes widespread harmful effect to human being along with its social consequence. Sudden withdrawal of any addicted drug produce psychosomatic disorder. **Material and method** - The material for this article is taken from personal clinical experiences and various clinical studies published in index and non-index journal concern with drug addiction, withdrawal and its management. *Ayurvedic samhitas* with its commentaries and textbook of Ayurveda and Modern medicine are referred to collect the material of relevant topic. **Result** - The Ayurveda has ancient science which has stores of herbal, mineral or herbomineral medication for prevention and cure of disease including Addiction and Withdrawal of drugs abused. The *Padansik kram* is a unique method described in Ayurveda to stop the any harmful or non harmful substance which homologous to human being, by taper up manner. *Shrikhandasav*, *Sameergaj kesari ras*, *madanodak modak gutika* should be replaced and taper up in alcohol, opium and cannabis addiction respectively, while Benzodiazepines, Barbiturate, Gamma-Hydroxy Bupvrate (GHB) and Methamphetamines should be taper up by same drug. In the case of cocaine and tobacco addiction, coca herbal tea and self prepared powder of *ajowayan* and tobacco should be given in tapering manner. In addition symptomatic withdrawal treatment by using concern drug, Psychological Counseling, *Abhyang*, *shiro-Abhyang*, *Shirodhara*, *Yoga* and *Meditation* has important role and should be applied in case of addiction to rehabilitate the patient. **Conclusion** - Withdrawal of addicted drug by Padanshik karma, symptomatic withdrawal treatment, psychological Counseling, *Abhyang*, *shiro-Abhyang*, *Shirodhara*, *Yoga* and *Meditation* are very helpful in de-addiction of drugs.

**Keywords:** Drug addiction, De- addiction, Ayurveda, drugs de-addiction

### INTRODUCTION

Addiction is defined as a chronic, relapsing brain disease that is characterized by compulsive drug seeking and use, despite harmful consequences. Drug dependence is an adaptive state that develops from repeated drug administration, and which results in withdrawal upon cessation of drug use.

Under the Drug De-addiction Program of Ministry of Health & Family Welfare, the Ministry has also provided one-time financial assistance of Rs.8 lakh each to 122 drug de-addiction centers in various Central / State Government hospitals across the country in India [1].

Drugs most often associated Addiction and dependence are Opium and its derivatives, Cocaine, Cannabis, Benzodiazepines, Barbiturates, Alcohol and Amphetamine. Globally, UNODC estimates that between 155 and 250 million people, or 3.5% to 5.7% of the population aged 15-64, had used illicit substances at least once in 2009[2].

But the problem of drugs addiction has not solved in India. An estimated 7.5 crore Indians are drug addicts and the number is going up significantly, spreading to semi-urban and backward areas, according to official figures [3].

In Ayurveda the chronic hazards of drugs addiction like Alcohol, Opium, Cannabis has been described in brief but the latter semi-synthetic and synthetic drugs from natural or chemical sources has not found in

Ayurveda. Ayurveda has mentioned that the withdrawal effect of Alcohol causes psychosomatic disorder [4]. But withdrawal effect of other natural, semi-synthetic and synthetic addicted drugs has not found in Ayurveda. The *padansik kram* to withdrawal of any substance has suggested in Ayurveda which is unique method to taper up the abused drugs or replacement of that abused drugs [5]. Recreational therapy, Psychological Counseling is also suggested only in Alcoholism [6, 7]. Hence it is need of time to evaluate, elaborate and discussion of drugs addiction and it method of Cure by Ayurveda.

### AIM AND OBJECTIVES

1. To evaluate, elaborate and discussed the drug addiction as per Ayurveda
2. To evaluate, elaborate and discussed the solution of drug addiction and its withdrawal as per Ayurveda.

### MATERIAL AND METHOD

The material for this article is taken from personal clinical experiences and various clinical studies published in index and non-index journal concern with drug addiction, withdrawal and its management. *Ayurvedic samhitas* has been reviewed along with its commentaries. Textbook of Ayurveda and Modern medicine has been referred to collect the material of relevant to topic.

#### Global Prevalence of Drug Addiction

Globally, it is estimated that in 2012, some 243 million people (range: 162 million-324 million) corresponding to some 5.2 per cent (range: 3.5-7.0 per cent) of the world population aged 15-64 had used an illicit drug — mainly a substance belonging to the cannabis, opioid, cocaine or amphetamine-type stimulant (ATS) group — at least once in the previous year. The extent of problem drug use, by regular drug users and those with drug use disorders or dependence, also remains stable, at about 27 million people (range: 16 million-39 million)[8]. Men are more likely than women to use drugs such as opiates and cannabis. However the gender gap shrinks when data on the misuse of pharmaceuticals are considered.

**Table-1:** Users of various addicted drug in the world

| Sr. No. | Drugs   | Prevalence | Users                        |
|---------|---|------------|------------------------------|
| 1.      | Opiates (heroin and opium)                      | 0.27- 0.43 | 12.8 million to 20.2 million |
| 2.      | Cocaine   | 0.4        | 14 million-21 million        |
| 3.      | Cannabis  | 2.7 - 4.9  | 125 million to 227 million   |
| 4.      | Amphetamine-Type Stimulants (excluding ecstasy) | 0.30- 1.18 | 13.9 million to 54.8 million |
| 5.      | ECSTASY-Methylenedioxy-methamphetamine (MDMA)   | 0.20-0.60  | 9.4 million -28.2 million.   |

#### Prevalence of Drug Addiction in India

This survey, jointly released in June 2004 by the Ministry of Social Justice and Empowerment and UNODC, contains a multi-modality approach whose main advantage is to ensure crosschecking, triangulation and multiple indicators in order to provide the most accurate picture of drug abuse trends. The National Survey has four major components-NHS, DAMS, RAS and Focused Thematic Studies.

The NHS (National Household Survey of Drug and Alcohol Abuse) was carried out between March 2000 and November 2001 on a randomly selected nationally representative sample (males only, 12 to 60 years) across the country. Altogether,

40,697 males were interviewed and data on various socio-demographic and drug use parameters was collected [9].

**Table-2:** Data of drug addiction in India

| Sr. No. | Drugs                    | Prevalence | No. of users in millions | % of dependent users | No. of dependent users in millions | patients seeking treatment in centers* |
|---------|--------------------------|------------|--------------------------|----------------------|------------------------------------|--|
| 1.      | Alcohol                  | 21.4%      | 62.5                     | 17                   | 10                                 | 43.9%                                  |
| 2.      | Cannabis                 | 3.0%       | 8.7 million              | 26                   | 2.3                                | 11.6%                                  |
| 3.      | Opiates                  | 0.7%       | 2 million                | 22                   | 0.5                                | 26.0%                                  |
| 4.      | Any illicit drug         | 3.6%       | 10.5 million             |                      |                                    |  |
| 5.      | Injecting drug use (IDU) | 0.1%       | 0.29 million             |                      |                                    | 14%                                    |

\*In the DAMS (Drug Abuse Monitoring System) component (UNODC ROSA and MSJE 2002), data was obtained from patients seeking help in various drug abuse treatment centers.

In the RAS (Rapid Assessment Survey of Drug Abuse-) component (UNODC ROSA and MSJE 2002a), information was collected from drug users on the streets of 14 cities in the country. 10 Some Key Informants (KIs) were also interviewed. Out of 4,648 drug users interviewed, 371 (8%) were women. Opiates (heroin, buprenorphine and propoxyphene) and cannabis were the major drugs abused. The highest proportion (35.6%) of subjects was currently (i.e., within the last one month) using heroin followed by other opiates (propoxyphene, opium, buprenorphine, and pentazocine) at 28.6%. About 22% were using cannabis, about 5% were Alcohol users and 3.7% had used sedatives and hypnotics. Nearly half had injected drugs at some time in their life (43%).

There are various drugs and their preparations are known by different-different name. They are taken by swallowed, smoked, snorted or injected. All the drugs severely affected all the system of the body on long term uses.

**Table-3:** Drugs with their commercial name and routes of administration

| Sr. No. | Drugs                         | Preparation or Commercial name  | Route of administration              |
|---------|-------------------------------|---|--------------------------------------|
| 1.      | Opioid                        | Opium   | Oral, Inhalation                     |
|         |                               | Morphine  | Injected                             |
|         |                               | Codeine   | Oral                                 |
|         |                               | Heroin, Brown Sugar Diacetyl-morphine   | Injected, Smoked. Chased             |
| 2.      | Cannabis                      | Bhang   | Oral                                 |
|         |                               | Ganja/Marijuana   | Smoked,                              |
|         |                               | Hashish/Charas  | Smoked,                              |
| 3.      | Cocaine Stimulant             | Blow, bump, candy, Charlie, coke, crack, rock, snow, toot                                       | Snorted, smoked, injected            |
| 3.      | Amphetamines Stimulant        | Biphetamine, Dexedrine, bennies, black beauties, crosses, hearts, speed, truck, drivers, uppers | Swallowed, smoked, injected, snorted |
| 4.      | Methampheta-mine Stimulant    | Desoxyn; chalk, crank, crystal, fire, glass, go fast, ice, meth, speed                          | Snorted, swallowed, smoked, injected |
| 5.      | MDMA Stimulant                | Adam, clarity, ecstasy, Eve, lover's speed, peace, STP, X, XTC                                  | Swallowed                            |
| 6.      | Barbiturates<br>Depressant    | Methaqualone (Mandrax), Secobarbital and Amylobarbital (Vesparax)                               | Swallowed, Injected                  |
| 7.      | Benzodiazepines<br>Depressant | Diazepam (Valium, Calmpose) and Lorazepam (Ativan)  | Swallowed, Injected                  |
| 9.      | LSD                           | Lysergic acid, diethylamide acid, blotter, boomers, cubes,                                      | Swallowed, absorbed                  |

|     |   |   |  |
|-----|---|---|--|
|     | <i>Hallucinogen</i>                         | <i>microdot, yellow sunshine.</i>   | <i>Through mouth tissues.</i>                  |
| 10. | <i>PCP<br/>Dissociative<br/>Anesthetics</i> | <i>Phencyclidine, angel dust, boat,<br/>hog, love boat, peace pill.</i>   | <i>Smoked, swallowed,<br/>injected</i>         |
| 11. | <i>Inhalants</i>                            | <i>Solvents (paint, thinners, gasoline, glues), gases (butane,<br/>propane, aerosol propellants, nitrous oxide), nitrites (isoamyl,<br/>isobutyl, cyclohexyl), laughing gas, poppers, snappers.</i> | <i>Inhaled, through nose<br/>or mouth</i>      |
| 12. | <i>Anabolic steroids</i>                    | <i>Anadrol, Oxandrin, Durabolin, Depo-Testosterone,<br/>Equipoise; roids, Juice</i>   | <i>Injected,swallowed,<br/>applied to skin</i> |
| 13. | <i>Alcohol</i>                              | <i>Bear, whiskey, rum, brandy, vodka, daru, Sharab.</i>   | <i>Drink</i>                                   |
| 14. | <i>Tobacco</i>                              | <i>Cigarette, biri, Tambaku, gutka, khaini, jarda</i>   | <i>Smoked and chewing</i>                      |

**Table-4:** Long term effect of various drugs and shrotas vikruti

| <i>Sr.<br/>No.</i> | <i>Drugs</i>                                | <i>Long term effect</i>   | <i>Strotas dushti</i>   |
|--------------------|---|---|---|
| 1.                 | <i>Opioid</i>                               | <i>Mood instability, reduced libido, constipation, constriction of pupils<br/>(which affects night vision), respiratory impairments, menstrual<br/>irregularity<sup>[10]</sup>.</i>   | <i>Manovah, shukravah, purishvah,<br/>mamsvah, pranvah and artav-vah,</i> |
| 2.                 | <i>Cannabis</i>                             | <i>Bronchitis, asthma, sinusitis, or chronic redness of the eyes Sterility,<br/>reduces immunity, Amotivational syndrome, Psychosis<sup>[10]</sup>.</i>   | <i>Pranvah, raktavah, manovah.</i>  |
| 3.                 | <i>Cocaine Stimulant</i>                    | <i>Paranoid ideation, visual and auditory hallucinations, pulmonary<br/>disease, hyperprolactinemia, loss of libido, Impotence and<br/>gynecomastia in male<sup>[11]</sup>.</i>   | <i>Manovah, sangyavah, pranvah,<br/>annavah, shukravah.</i>               |
| 3.                 | <i>Amphetamines Stimulant</i>               | <i>Psychosis, dizziness, mood or mental changes, weakness, cardiac<br/>arrhythmias, repetitive motor activity, ulcers, malnutrition, mental<br/>illness, skin disorders flush or pale skin, loss of coordination<sup>[12]</sup>.</i>  | <i>Manovah, rasavah, pranvah,<br/>annavah, raktavah,</i>                  |
| 4.                 | <i>Methampheta-mine<br/>Stimulant</i>       | <i>Anxiety, confusion, insomnia, mood disturbances, violent behavior,<br/>psychotic features, including paranoia, visual and auditory<br/>hallucinations, and delusions<sup>[13]</sup>.</i>   | <i>Manovah, rasvah, samgyavah</i>   |
| 5.                 | <i>MDMA Stimulant</i>                       | <i>Confusion, Depression, Sleep problems, Drug craving, Severe anxiety,<br/>Possible depletion of serotonin and memory, Death<sup>[14]</sup></i>  | <i>Manovah, samgyavah, pranvah,<br/>rasavah.</i>                          |
| 6.                 | <i>Barbiturates<br/>Depressant</i>          | <i>Cause sleeping disorders, respiratory problems, menstrual<br/>irregularities, and a lack of sex drive and irreversible damage to the<br/>brain<sup>[15]</sup>.</i>   | <i>Pranavah, rasavaah, shukravah,<br/>aartavvah,</i>                      |
| 7.                 | <i>Benzodiazepines<br/>Depressant</i>       | <ul style="list-style-type: none"><li><i>Impaired thinking, memory loss, anxiety, depression,<br/>irritability, aggression, personality change, weakness, lethargy,<br/>drowsiness, fatigue, difficulty sleeping, headaches, nausea skin rashes<br/>and weight gain<sup>[16]</sup>.</i></li></ul> | <i>Manovah, samgyavah, paranvaha,<br/>rasavah, raktavah</i>               |
| 9.                 | <i>LSD<br/>Hallucinogen</i>                 | <i>Psychosis, Amotivational syndrome, Flashbacks<sup>[10]</sup>.</i>  | <i>Manovah, samgyavah</i>   |
| 10.                | <i>PCP<br/>Dissociative<br/>Anesthetics</i> | <i>Impaired memory, Flashbacks (similar to chronic LSD), Persistent<br/>speech problems, anxiety and depression, suicide attempts, Social<br/>withdrawal and isolation, Toxic psychosis, paranoia and auditory<br/>hallucinations<sup>[17]</sup>.</i>   | <i>Manovah, samgyavah, rasavah,<br/>pranavah.</i>                         |
| 11.                | <i>Inhalants</i>                            | <i>Psychosis and permanent brain damage. Tachycardia (increased heart<br/>beat) with possible ventricular fibrillation can occur. Damage to the<br/>liver, kidneys and heart is also possible<sup>[18]</sup></i>  | <i>Manovah, pranavah, rasavah,<br/>annavah, mutravah,</i>                 |
| 12.                | <i>Anabolic steroids</i>                    | <i>Liver disease or liver cancer,<br/>Men- Development of breasts, shrinking of the testicles.</i>  | <i>Annavah, shukravah, aartavavah.</i>                                    |

|     |                |  |   |
|-----|----------------|--|---|
|     |                | <i>Women- Deepened voice, Enlarged clitoris, abnormal menstrual cycles</i><br><sup>[19]</sup>  |   |
| 13. | <i>Alcohol</i> | <i>Fatty liver, Hepatitis, Pancreatitis, Malabsorption, Thiamine, Pyridoxine, deficiencies, Anaemia, Hypertension, Wernicke- Korsakoffs syndrome, Peripheral neuropathy, Hypocalcaemia, Hypomagnesaemia</i><br><sup>[20]</sup> | <i>Pranvah, rasavah, raktavah, annavah,</i> |
| 14. | <i>Tobacco</i> | <i>Cardiovascular diseases, cancer, chronic obstructive pulmonary disease, male impotence and in pregnancy: premature rupture of membranes, abruption placentae, placenta previa, and abortion</i><br><sup>[21]</sup>          | <i>Pranvah, rasavah, shukravah,</i>         |

## WITHDRAWAL EFFECT OF DRUGS

The addicted or dependent person abruptly stopped the drug leads to withdrawal symptoms. The withdrawal symptoms may range from mild discomfort to sever. The intensity of withdrawal symptoms depends on the physical condition of the user, the type of drug abused, the amount of drug intake and the duration of abuse. Symptoms of drug withdrawal of various drugs are mentioned in given table.

**Table-5:** Withdrawal effects of opium, cannabis and tobacco

| <i>Sr. No.</i> | <i>Clinical Feature</i>           | <i>Opium</i> <sup>[22]</sup> | <i>Cannabis</i> <sup>[23]</sup> | <i>Tobacco</i> <sup>[24]</sup> |
|----------------|-----------------------------------|------------------------------|---------------------------------|--------------------------------|
| 1.             | <i>Agitation</i>                  | ✓                            | ✓                               | ✓                              |
| 2.             | <i>Anxiety</i>                    | ✓                            | ✓                               | ✓                              |
| 3.             | <i>Bones &amp; Joints aches</i>   | ✓                            | -                               | -                              |
| 4.             | <i>Dilated Pupil</i>              | ✓                            | -                               | -                              |
| 5.             | <i>Drowsiness</i>                 | -                            | ✓                               | -                              |
| 6.             | <i>Fear</i>                       | -                            | ✓                               | -                              |
| 7.             | <i>Feeling of Unreality</i>       | -                            | ✓                               |                                |
| 8.             | <i>Gooseflesh Skin</i>            | ✓                            | -                               | -                              |
| 9.             | <i>Headache</i>                   | -                            | ✓                               | -                              |
| 10.            | <i>Hunger feeling</i>             | -                            | ✓                               | ✓                              |
| 11.            | <i>Loss of Appetite</i>           | -                            | ✓                               | -                              |
| 12.            | <i>Mood Swings</i>                | -                            | ✓                               | <i>Depression</i>              |
| 13.            | <i>Nausea &amp; Vomiting</i>      | ✓                            | ✓                               | -                              |
| 14.            | <i>Paroxysmal Sweats</i>          | ✓                            | -                               | -                              |
| 15.            | <i>Poor Concentration</i>         | -                            | -                               | ✓                              |
| 16.            | <i>Racing Thought</i>             | -                            | ✓                               | -                              |
| 17.            | <i>Restlessness</i>               | ✓                            | ✓                               | ✓                              |
| 18.            | <i>Running Nose &amp; Tearing</i> | ✓                            | -                               | -                              |
| 19.            | <i>Sleep Difficulties</i>         | -                            | ✓                               | ✓                              |
| 20.            | <i>Tachycardia</i>                | <i>Resting</i>               | -                               | -                              |
| 21.            | <i>Tremor</i>                     | ✓                            | -                               | -                              |
| 22.            | <i>Yawing</i>                     | ✓                            | -                               | -                              |

**Table-6:** Withdrawal effects of amphetamine, alcohol, benzodiazepine and cocaine

| Sr. No. | Withdrawal Symptoms                     | Amphetamine <sup>[25]</sup> | Alcohol <sup>[26]</sup> | Benzodiazepine <sup>[27]</sup> | Cocaine <sup>[28]</sup> |
|---------|---|-----------------------------|-------------------------|--------------------------------|-------------------------|
| 1       | Irritability                            | ✓                           | -                       | -                              | ✓                       |
| 2       | Depression                              | ✓                           | -                       | -                              | ✓                       |
| 3       | Racing thoughts                         | ✓                           | -                       | -                              | -                       |
| 4       | Restlessness/Agitation                  | ✓                           | ✓                       | ✓                              | -                       |
| 5       | Feelings of unreality                   | ✓                           | -                       | -                              | -                       |
| 6       | Drowsiness                              | ✓                           | -                       | -                              | -                       |
| 7       | Nausea/Vomiting                         | ✓                           | ✓                       | -                              | -                       |
| 8       | Headache                                | -                           | ✓                       | ✓                              | -                       |
| 9       | Anxiety                                 | -                           | ✓                       | ✓                              | -                       |
| 10      | Orientation & Clouding of Sensorial     | -                           | ✓                       | -                              | -                       |
| 11      | Paroxysmal Sweats                       | -                           | ✓                       | -                              | -                       |
| 12      | Tactile, Auditory & Visual Disturbances | -                           | ✓                       | -                              | -                       |
| 13      | Tremor                                  | -                           | ✓                       | -                              | -                       |
| 14      | Concentration problem                   | -                           | -                       | ✓                              | -                       |
| 15      | Appetite                                | -                           | -                       | ✓                              | Increased               |
| 16      | Palpitations                            | -                           | -                       | ✓                              |                         |
| 17      | Apathy                                  | -                           | -                       | -                              | ✓                       |
| 18      | Paranoia                                | -                           | -                       | -                              | ✓                       |
| 19      | Loss of sex drive                       | -                           | -                       | -                              | ✓                       |
| 20      | Suicidality                             | -                           | -                       | -                              | ✓                       |
| 21      | Sleep                                   | -                           | -                       | -                              | Less /excessive         |
| 22      | Feels Tired & tense                     | -                           | -                       | -                              | ✓                       |

## MANAGEMENT OF WITHDRAWAL AND DRUGS ADDICTION

The general principles of treatment for all drugs including alcohol are similar. However, treatments for specific substances may differ as the problems associated with drug abuse and medicines needed are different. Further pre-treatment variables and severity of addiction vary significantly from person to person and from one substance to another. Drug and alcohol abuse are complex problems and have impact on the occupation, health, or social spheres of individuals. The treatment of substance use disorder is in to step

1. Pharmacological treatment
2. Non pharmacological treatment.

Under these two steps of treatment there are two types of treatment has to be required for de-addiction of drugs, first is treatment of withdrawal and second one is rehabilitation.

### 1. Pharmacological treatment of Substance Use Disorder

The goal of a good treatment program is to discover and heal the underlying causes of dependency on drugs. Pharmacotherapeutic intervention has an important role play in the management of substance abuse. It is important not only in the withdrawal treatment, but also in the long-term management (relapse prevention). In this firstly we stop the abuse drug by replacing it by Ayurvedic medicine having same effects like abused drug and the medicine is decreasing by Quad-part-manner (*padanshik kram*) or abused drug itself decreasing in

quad-part- manner and finally fully stop the drug. The Ayurveda has suggested a 'Padanshik Krama' to avoid the harmful effect due to sudden withdrawal of *Satmya* Substance. By the method of *padanshik kram* the dose of drugs are decreasing step wise so that there are less chances of appearing withdrawal symptoms. If the withdrawal symptoms are appears then they are treated symptomatically.

**Table-7:** Shows the replacement of drugs and tapering method.

| Sr. No.              | Addicted Drugs                   | Drugs of Withdrawal/ Replacement         | Day                                | Method of Withdrawal/ Replacement | Period   |
|----------------------|----------------------------------|--|------------------------------------|-----------------------------------|----------|
| 1                    | Alcohol                          | Shrikhandasav                            | D <sub>1</sub>                     | 100ml TDS                         | 7 day    |
|                      |                                  |  | D <sub>2</sub> & D <sub>3</sub>    | 50ml BD                           |          |
|                      |                                  |  | D <sub>4</sub> to D <sub>6</sub>   | 50ml HS                           |          |
|                      |                                  |  | D <sub>7</sub>                     | 25ml HS                           |          |
| 2                    | Opium and Its Derivatives        | Sameer-Gaj-Kesari Ras                    | D <sub>1</sub>                     | 250mg TDS                         | > 2 week |
|                      |                                  |  | D <sub>2</sub> & D <sub>3</sub>    | 125mg- 250mg-250mg TDS            |          |
|                      |                                  |  | D <sub>4</sub> to D <sub>6</sub>   | 125mg- 250mg BD                   |          |
|                      |                                  |  | D <sub>7</sub> to D <sub>10</sub>  | 125mg- 125mg BD                   |          |
|                      |                                  |  | D <sub>11</sub> to D <sub>15</sub> | 125mg HS                          |          |
|                      |                                  | D <sub>16</sub>                          | 62mg HS                            |                                   |          |
| Kuchala Siddha Kshir | D <sub>1</sub> to D <sub>7</sub> | Mava containing 60mg pure seed powdered. | 5 – 7 day                          |                                   |          |
| 3                    | Cannabis and Its Derivatives     | Madan Modak Gutika                       | D <sub>1</sub>                     | 3gm TDS                           | 2 week   |
|                      |                                  |  | D <sub>2</sub> & D <sub>3</sub>    | 1.5gm-1.5gm-3gmTDS                |          |
|                      |                                  |  | D <sub>4</sub> to D <sub>6</sub>   | 1.5gm-3gm BD                      |          |
|                      |                                  |  | D <sub>7</sub> to D <sub>10</sub>  | 1.5gm BD                          |          |
|                      |                                  |  | D <sub>11</sub>                    | 1.5gm Hs                          |          |
| 4                    | Benzodiazepines                  | Benzodiazepines                          | D <sub>1</sub>                     | 3/4 of Initial Dose / HS          | 1 week   |
|                      |                                  |  | D <sub>2</sub> & D <sub>3</sub>    | 1/2 of Initial Dose / HS          |          |
|                      |                                  |  | D <sub>4</sub> to D <sub>6</sub>   | 1/4 of Initial Dose/ HS           |          |
|                      |                                  |  | D <sub>7</sub>                     | Nil                               |          |
| 5                    | Barbiturate                      | Barbiturate                              | D <sub>1</sub> to D <sub>4</sub>   | 3/4of Initial Dose / HS           | 2 week   |
|                      |                                  |  | D <sub>5</sub> to D <sub>8</sub>   | 1/2 of Initial Dose / HS          |          |
|                      |                                  |  | D <sub>9</sub> to D <sub>12</sub>  | 1/3 of Initial Dose/ Hs           |          |
|                      |                                  |  | D <sub>13</sub>                    | Nil                               |          |
| 6                    | Gamma-Hydroxy Bupvrate (GHB)     | Gamma-Hydroxy Bupvrate (GHB)             | D <sub>1</sub>                     | 3/4 of Initial Dose               | 7 day    |
|                      |                                  |  | D <sub>2</sub> & D <sub>3</sub>    | 1/2 of Initial Dose.              |          |
|                      |                                  |  | D <sub>4</sub> to D <sub>6</sub>   | 1/4 of Initial Dose               |          |
|                      |                                  |  | D <sub>7</sub>                     | Nil                               |          |
| 7                    | Methamphetamines                 | Methamphetamines                         | D <sub>1</sub>                     | 12/16 of Initial Dose / HS        | 3 week   |
|                      |                                  |  | D <sub>2</sub> & D <sub>3</sub>    | 10/16 of Initial Dose / HS        |          |
|                      |                                  |  | D <sub>4</sub> to D <sub>6</sub>   | 8/16 of Initial Dose/ Hs          |          |
|                      |                                  |  | D <sub>7</sub> to D <sub>10</sub>  | 4/16 of Initial Dose/ HS          |          |
|                      |                                  |  | D <sub>11</sub> to D <sub>15</sub> | 2/16 of Initial Dose/ Hs          |          |
|                      |                                  |  | D <sub>16</sub> to D <sub>21</sub> | 1/16 of Initial Dose/ Hs          |          |
| 8                    | Cocaine                          | Coca Herbal Tea (mate de coca)           | D <sub>1</sub>                     | 240 ml (8 ounce) BD               | 4 day    |
|                      |                                  |  | D <sub>2</sub>                     | 120 ml (4 ounce) BD               |          |
|                      |                                  |  | D <sub>3</sub>                     | 60 ml (2 ounce) BD                |          |
|                      |                                  |  | D <sub>4</sub>                     | 30 ml (1 ounce) BD                |          |
| 9                    | Tobacco                          | Tobacco ajowan churna                    | D <sub>1</sub> - D <sub>4</sub>    | Tobacco-4mg + Ajowan-2gm          | >2week   |
|                      |                                  |  | D <sub>5</sub> - D <sub>8</sub>    | Tobacco-3mg + Ajowan-2gm          |          |
|                      |                                  |  | D <sub>9</sub> - D <sub>12</sub>   | Tobacco-2mg + Ajowan-2gm          |          |
|                      |                                  |  | D <sub>12</sub> - D <sub>16</sub>  | Tobacco-1mg + Ajowan-2gm          |          |
|                      |                                  |  | D <sub>17</sub>                    | Ajowan-2gm                        |          |

### Symptomatic Management of withdrawal and drug Addiction

Though the drugs used in the process of detoxification will be minimized the withdrawal effect, the psycho-somatic clinical manifestation which will be observed at that time, have to be managed by giving symptomatic management. Hence the psycho-somatic clinical pattern, time duration of subsiding and severity of the manifestation are varies drugs to drugs and it severity of addiction. The symptomatic management is given in Table-8

**Table-8:** Shows the symptomatic management of addiction during detoxification

| Sr. No. | Clinical feature                 | Symptomatic Management   |
|---------|----------------------------------|--|
| 1       | Nausea & Vomiting (WHO)          | Ela (Cardamom) powder <sup>[29]</sup> is given in a dose of 250 milligrams to 500 milligrams for adults two to three times a day with a little warm water or honey. It is advisable to consume the powder on an empty stomach or half-an-hour before eating meals. |
| 2       | Headache (WHO)                   | Dose of the powder Pippalimoola (Root of Piper longum Linn.) for adults is 2 to 3 grams, to be taken twice daily, preferably on an empty stomach mixed with 3 to 5 gm of ghee or butter or honey and followed by warm water or milk.                               |
| 3       | Bones & Joints aches (WHO)       | Ajamoda (Apium leptophyllum) powder adults - 1 to 3 grams two or three times a day, with warm water.   |
| 4       | Indigestion and Loss of Appetite | Panchakol powder 500mg twice a day.  |
| 5       | Diarrhoea                        | Bilvadileha 6gm thrice a day <sup>[30]</sup>   |
| 6       | Stomach Cramp                    | Mix 1 teaspoon each of mint juice and lime juice; add a few drops of ginger juice and a pinch of black salt. Drink this mixture to alleviate pain.   |
| 8       | Hunger feeling                   | The seeds of Apamarga (Achyranthes aspera) should be cooked like rice by adding milk to make kheer (payasa- milk & rice preparation) <sup>[31]</sup> .   |
| 9       | Anxiety and Agitation            | 1gm of Sarasvata choorna mixed with madhu (honey) and ghrita (cow's ghee) twice a day <sup>[32]</sup> .<br>2gm of fortified Mandookaparni choorna 3 times a day, after food with warm water.   |
| 13      | Insomnia                         | Guda Pippalimool Yoga 4gm with 1 Glass of Milk at bed time <sup>[33]</sup>   |
| 14      | Constipation                     | Katuka (Picrorhiza curroa) - 5 gm <sup>[34]</sup>  |

### **External medication and procedure for withdrawal and Drug Addiction**

Along with internal medication external application of medicine and procedures in varieties of ways have own place in treatment of Substance use disorders. It is useful in both treatment of withdrawal manifestation as well as rehabilitation of the patient. So it is continuous for longer period even after the completion of withdrawal treatment.

**Abhyang (Massage)** - It is done with warm, herb-infused oil and takes only about 15-30 minutes for whole body massage. It helps pacify Vata dosha, relieving stress, anxiety and feeling of being overwhelmed and spaced-out.

**Shiro Abhyanga (Head to Massage)** - Application of medicated oil to the head is said to be ShiroAbhyanga. Head is one of the important vital organs (Marmas) and having all sense organs in it and hence one should protect it from stress and strain by doing ShiroAbhyanga.

**Shirodhara-** Pouring of fluids like decoction, medicated oil, medicated milk, medicated butter milk and water over head continuously for a specific period is called shirodhara, which is effective in insomnia. Normally 2030 minutes are the duration for Dhara and it can be continued for 15 to 21 days.

### **2. Non pharmacological treatment of Substance Use Disorder**

Non-pharmacological treatment is play vital role and has its own place in Substance Use Disorder. Especially this treatment is for rehabilitation of patient so it is continuous for longer period. It includes psychological counseling, Recreational therapy, yoga (meditation, aasana, pranayam), nutritional diet and daily schedule. Out of this psychological counseling is started from first day of treatment and lefts are started as per the patient condition or generally after a week of treatment because in duration of withdrawal symptoms it is difficult to applied this non pharmacological treatment.

**Psychological Counseling-** It is needed to create awareness about the ill-effects of alcoholism and substance abuse to the individual. A warm, friendly and sympathetic relationship between the therapist and the

patient is the basis of any psychotherapeutic procedure. Sometimes, numerous counseling sessions are required before the patient realizes that he has a drug problem that needs medical treatment.

### Yoga Therapy and Meditation

Yoga therapy is effective in the rehabilitation of drug addicts [35], and its effects on musculo-skeletal system, cardio respiratory system, nervous system, internal digestive system etc are well documented facts.

*Anulom- Vilom Pranayam* (Breathing Exercise) - *Pranayama*, most commonly known as *deep breathing exercises* and *Anulom Vilom pranayama* we perform deep breath in and out without any sound. It helps to balance and calm the mind, increasing mental clarity and alertness.

Savasana (Relaxation) - Yogic relaxation by *Savasana* along with auto suggestion (tensing, then relaxing, each part of the body progressively from toes to head) are useful in reducing mental tension and anxiety.

Meditation- Presently many meditation techniques are being practiced. Most popular form of this meditation is “transcendental meditation” and it is generally done by focusing the mind on some mantra (sound) to achieve transcendental state of consciousness.

There are some common measures or strategies which have to be adapted to calm down the specific symptoms so such types of measures have to be advised to patients..

**Table-9:** Shows some common withdrawal symptoms and *pathya* (diet plus working pattern)

| Sr. No. | Symptom               | Coping Strategy  |
|---------|-----------------------|--|
| 1       | Irritability          | Take walk, take bath, relax and talk to friends, listen to favorite Music, do breathing exercises/ Yoga.   |
| 2       | Fatigue               | Relax, take naps, increase intake of fluids  |
| 3       | Insomnia              | Avoid tea, coffee, aerated drinks after 6pm; develop habit of reading books  |
| 4       | Cough                 | Drink plenty of fluids, use lozenges, steam inhalation   |
| 5       | Nasal Drip            | Drink plenty of fluids   |
| 6       | Dizziness             | Change positions slowly, relax   |
| 7       | Lack of Concentration | Plan workload, avoid stress, time management   |
| 8       | Constipation          | Add fiber to your diet through fresh fruits, vegetables etc; drink plenty of fluids  |
| 9       | Headaches             | Drink plenty of fluids, and practice relaxation, eat small snacks  |
| 10      | Hunger                | Increase intake of fruits/ vegetables/ fluids; avoid heavy meals, take smaller meals at shorter intervals  |
| 11      | Craving               | Distract yourself – Drink water Or fruit juice, read, exercise, and talk to family members/friends. Remind yourself that the urge will die down in a few minutes |

### Treatment of long term effects of drug Addiction

The long term effects on body of continue use of addicted drug is varied from drug to drug and generally it affects whole body system so the treatment is given according to disorder produced by the drug.

### DISCUSSION

Drug addiction is the major problem in the world including India. As the number of drug addicts is fast rising in the country, it is important for their families and general practitioners to understand the psychosomatic problems caused by drug abused. Many different types of drugs can be addicted: not only illegal drugs such as heroin, cannabis, cocaine or ecstasy, but also prescription drugs such as tranquilizers, analgesics. The main groups of addicted drugs are Stimulants, Depressants, Narcotics and Hallucinogens. Addiction is a state of physical or psychological dependence on a substance. Physical addiction includes the development of tolerance (needing more and more of the drug to achieve the same effect) and withdrawal

symptoms that appear when the user stops taking the drug, and disappear when more of the drug is taken. The management of drug addiction is divided into two subheadings pharmacological and non-pharmacological treatment.

Acharya Charak stated that the concept of *Oak satmya* [36] on which Acharya Chakrapani has given the commentary that *Apathya* (unwholesome) substance whatever it may be harmful or less harmful may become *satmya* (homologous) due to continuous prolonged utilization. Hence we can conclude that an addiction is a form of *satmya* though the prolonged adverse effect of substance depends upon the nature, property, dose of substance, duration and mode of utilization. Acharya Charak stated the *Jitendriya* (Sense subdued) person who leaves all types of alcohol that intelligent person never suffers from physical and mental disorder. It means if a person who is not *jitendriya* and leaves alcohol he will suffer from physical and mental disorders and the clinical manifestations are called withdrawal symptoms. Headache, joint ache, loss of appetite, nausea, vomiting, restlessness, sleeping difficulties are some common physical manifestations of drug withdrawal and there are some specific manifestations like running nose & tearing is seen in opium & its derivatives. Anxiety, agitation, mood swings, depression, irritability, loss of concentration are some common psychological manifestations along with some specific manifestations like anhedonia seen in cocaine withdrawal. Maharshi Vedavyasa has mentioned in his Mahakavya Bhagvatgeeta that the *Sidha purush* (Ascetic) are free from all the indulgence but the common people cannot because the perception of substance will remain in the body [37]. Acharya Charak suggested the *padanshik karma* for withdrawal of such drugs subsequently, so that none of or less withdrawal effect will appear in the addicted persons. The severity of withdrawal symptom of a drug present for a particular time period which varies from drug to drug [38 to 46], after this period the withdrawal symptoms disappear so it is very important to manage this clinical manifestation of withdrawal in this particular period by replacing the addicted drug with specific Ayurvedic preparation having same ingredients of that addicted drug or same drug tapered up in decreasing quantity following *padanshik karma*.

*Shrikhandasava* is mentioned in *madatyaya* (alcoholism) treatment [47] and it can be successfully used to tapering the alcohol. *Sameergaj kesari ras* containing opium and it is used as opioid analgesic or in vata disease. With the help of *sameergaj kesari ras* opium and its derivatives can be tapered up in opium addicted patient. Also the purified one part *Strychnos nuxvomica* (*shodhit kuchla*) is poured into 16 parts of cow milk and granulated on heating to prepare *mava* (*khoaya*). This *mava* is given in a dose of 250 mg twice a day to the opium addicted patient helps to de-addict it [48]. In case of cannabis addicted patient *madanodak modak* is very useful for tapering cannabis, it contains 50% *shodhit bhanga*, so cannabis and its derivatives are replaced by *madanodak modak* [49]. Coca leaf is used to make coca herbal tea which has same effect as cocaine but in lesser amount. It can be used to replace the cocaine and tapered up the cocaine. Quit nicotine powder is a mixture of nicotine and *ajowan*, and it can be used to taper up the tobacco. In quit nicotine powder the decreasing quantity of nicotine and increasing quantity of *ajowan* is used. The *ajowan* has the same *ras* (*katu, tikta*), *gune* (*laghu, tikshan*), *virya* (*ushana*) and *vipak* (*katu*) like tobacco [50,51], it does not have *vyavaya* and *vikasi guna* but due to its similar taste it gives the false filling of tobacco in mouth.

Benzodiazepines, Barbiturate, Gamma-Hydroxy Bupivrate (GHB) and Methamphetamines are the drugs for which we don't find any herbal drugs that can be used to replace these drugs and tapered up. So tapering of these drugs is done with the same drug withdrawn by decreasing its own quantity in *padanshik karma*. The withdrawal symptoms are generally not seen on complete stopping of the drugs by *padanshik karma*, if they appear then the symptomatic treatment is given.

Nausea vomiting is the common withdrawal symptoms seen in opium, cannabis, alcohol and amphetamine. In this case *Ela churna* is used which is indicated in vomiting [52]. In alcohol withdrawal symptoms one of the manifestations is headache, if it is present then Pipallimool powder is the drug of choice which is given empty stomach with ghee, honey or butter [53]. Bones & Joints ache is commonly seen in opium withdrawal symptoms for this *Ajamoda* (*Apium leptophyllum*) powder is very effective [54]. The loss of appetite and indigestion in withdrawal can be best treated by the panchakole powder [55]. If a patient feeling excessive hunger then *Apamarga kshir* is given to the patient. Diarrhoea is seen in many drugs as withdrawal symptoms can be treated by *Bilvadileha* [56]. If patient suffering from stomach cramps then the mixture of mint and lime juice 1-1 teaspoon added with few drops of ginger juice and pinch of black salt is given [57].

Anxiety and Agitation is the common psychological manifestation generally seen in all types of drug withdrawal symptoms. It is best treated by the use of *Sarasvata choorna* with honey and ghee [58]. *Mandookaparni choorna* is also very effective in this case [59].

Many of the drugs withdrawal symptoms manifest as insomnia or sleep disturbance especially in Cannabis, cocaine and tobacco. If it is present then Pippalimool yoga with gud (jagury) helps to come out from this problem [60]. Many patient suffering from constipation in withdrawal symptoms, it can be best treated by Katuka (*Picrorhiza curroa*) which is a good purgative [61].

In Panchkarma therapy *Abhyang, shiroabhyang and shirodhara* [62] is helpful to normalized the vitiated vata and reduces anxiety, stress and insomnia.

Psychological counseling has very important role in de-addiction [63] it is also mentioned in ayurvedic samhita which aware the patient from ill effects of drug addiction and give will power to come out from drug addiction. Pranayam and asana especially Anulome vilome, bhramari pranayam and savasana is helps the patient to calm down the mental stress and increasing alertness. The daily schedule has a very imperative role to rehabilitation of the patient. Recreational therapy is improving physical, emotional, cognitive quality which is mentioned as harshini chikitsa in Ayurvedic samhita.

As the psychological manifestation of substance use disorder is similar to psychological clinical manifestation of drug withdrawal hence Abhyanga, shiroabhyang, Shirodhara, meditation, yoga, psychological counseling should be extended for rehabilitation of patient. Somatic substance use disorder are varies drug to drugs, hence it should be managed symptomatically and as per disorder which will be produced in particular addiction.

## CONCLUSION

*Padansik Kram* is a unique method to avoid the sudden withdrawal of harmful substance including drugs. By replacing the addicted drugs with medicated drugs or same drug in taper up method detoxification should be achieved. Psychological Counseling, *Abhyang, shiro-Abhyang, Shirodhara, Yoga and Meditation* has important role and should be applied in case of addiction to rehabilitate the patient.

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