Alcoholism – Psychiatric Perspective

Dr. Vishwak Reddy
2nd year PG
Dept. of Psychiatry

OUTLINE

- **Introduction**
- **Types of alcohol beverages and their equivalence**
- **Physiology of effects of alcohol on CNS**
- **Etiology of Alcoholism**
- **Mental and Behavioral disorders due to alcohol**

  - clinical features and diagnostic guidelines

  - Pharmacological management

  - Psychological management

INTRODUCTION

- **Alcoholism** also known as **Alcohol Use Disorder (AUD)** is a broad term used for **any drinking of alcohol that results in problems** to the individual and others

- Health problems associated with alcohol consumption have reached **alarming levels** at present, and alcohol use contributes to a wide range of diseases both **physical and mental disorders**

TERMINOLOGY

Dependence - The repeated use of drug or chemical substance, **with** psychological dependance and **with or without** physical dependance

- **Psychological dependance –** dependance that involves **emotional** withdrawal symptoms

- **Physical dependence -** an **altered physiological state** caused by repeated administration of a drug, the cessation of which results in **physical** and **somatic** withdrawal symptoms

- **Abuse -** use of any drug usually by self administration, in a manner that **deviates from approved social or medical patterns**

- **Addiction -** the repeated and increased use of a substance, the deprivation of which gives rise to symptoms of **distress** and **irresistable urge** to use again and also leads to **physical and mental deterioration**

- **Tolerance -** phenomenon in which, after repeated administration, a given dose of drug produces **decreased effect** or increasingly **larger doses** must be administered to obtain effect observed with the original dose

Types of alcohol beverages their alcohol percentages

Ethyl alcohol is the common form of alcohol used for drinking

- Wine 10-22 %
- Beer 4-8 %
- Vodka 35-50 %
- Whisky 40 -55 %
- Rum 40-55 %
- Brandy 40-50 %

- Country liquor 25-45%
  arrack
  desi sharab
  tari

- Toddy 5 -10 %

Equivalence of different types of alcohol

- The equivalence of different beverages is measured in terms of **Units** of alcohol
- **One unit = 12 gms** of **ethyl alcohol**, often considered as one drink

Equivalence of different types of alcohol

1 unit of alcohol	**=**	**285 – 330 ml beer**	**=**	**120 ml wine**	**=**	**30 – 45 ml whisky, rum, gin vodka, brandy**

Significance

- **1 unit of alcohol** increases blood alcohol level by **15 - 20 mg/dl**
- Permissible alcohol limit for driving in India - **30 mg/dl**
- The body can metabolize about **15 mg/dl per hour**

Physiology of Effects of alcohol on the Central Nervous System

- No single molecular target has been identified as the mediator for the effects of alcohol
- Studies shown that alcohol **enhances** ion channel activities of **serotonin (5HT-3) and dopamine** receptors at **low doses** – **acts as CNS stimulant**
- At **high doses** alcohol **enhances** ion channel activites **GABA Type A receptors** and inhibits of **glutamate receptors** and voltage gated calcium channels
- **At high doses it acts as CNS depressant**

ETIOLOGY OF ALCOHOLISM

Psychological Theories

A variety of theories relate to the **use of alcohol to**

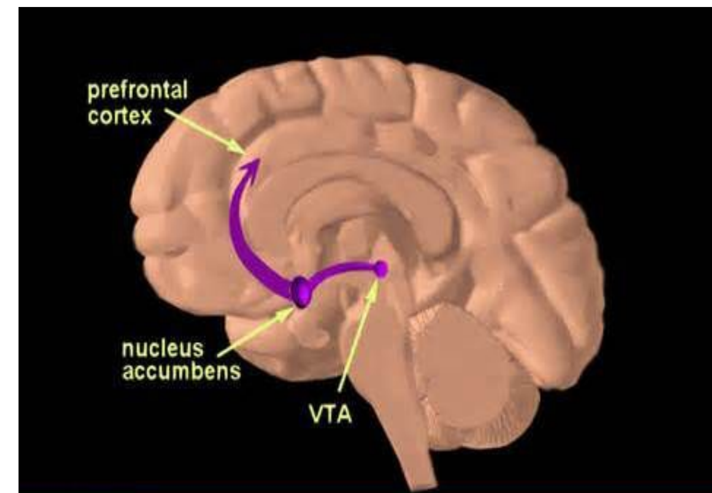
- Reduce **tension**
- Increase **feelings of power**
- Decrease the effects of **psychological pain**
- Decrease the feelings of **nervousness**
- Helps them cope with the day to day **stresses of life**
- Cope up with **negative emotional states**
- Enhances **feeling of well-being** and an improved ease of **interactions**

Behavioral Theories

Following contribute to the decision to drink again after the first experience with alcohol and continue to imbibe despite problems

- Expectations about the **rewarding effects of drinking**
- **Cognitive attitudes** towards responsibility of one's behavior
- Subsequent **reinforcement** after alcohol intake

Brain - reward circuitry - the **dopaminergic neurons in** the **ventral tegmental area** and their projections into limbic system especially **nucleus accumbens** and **prefrontal cortex** is probably involved in the **sensation of reward**



Sociocultural Theories

- Cultural factors account for as much as **40 %** of the alcoholism risk

- Cultural attitudes towards **drinking, drunkenness**, and personal responsibility for **consequences** are important contributors to the rates of alcohol-related problems in a society

- In many societies the use of alcohol during the **teenage** and **adult life** is very common. For a large number of **youth** it may signify nothing more than a **healthy psychological experimentation**

Genetic Theories

- Three to four fold increased risk for severe alcohol problems is seen in **close relatives** of alcoholic people

- The rate of alcohol problems increases with the **number of alcohol relatives**, the **severity of their illness**, and the **closeness of their relationship** to the person under study

- **Adoption type studies** - enhanced risk for alcoholism in the offspring of alcoholic parents, **even when the children had been separated from their biological parents** and raised without any knowledge of the problems within the biological family

Childhood History

- Children of **parents (one or both) diagnosed with alcohol-related disorder**
- A childhood history of
  - **Attention Deficit Hyperactivity Disorder (ADHD)**
  - **Conduct Disorder**

  increases a child's risk for an alcohol-related disorder as an adult

Psychiatric diagnoses -

most commonly associated with the alcohol-related disorders are

- **Antisocial Personality Disorder**
- **Mood disorders** - Depressive disorder
  - Bipolar disorder
- **Anxiety disorders** - Phobias
  Panic disorder
- **Deliberate self harm / Suicides**

Mental and Behavioral disorders due to use of alcohol

- These are classified **under F-10** in International Classification of Diseases-10 Classification of mental and behavior disorders (**ICD-10**) WHO1992.

F 10.0 Alcohol Intoxication

- A **transient reversible condition** following the **administration of alcohol** resulting in **disturbances in level of consciousness** and **one or more of the following mental functions** like memory, orientation, mood, judgement, and behavioral, social or occupational functioning

- This transient condition is **not** explained by any general medical condition

Impairment likely to be seen at different Blood Alcohol Concentrations

Blood Alcohol Concentration	Likely Impairment
20 – 30 mg/dl	slowed motor performance and **decreased thinking ability**
30 – 80 mg/dl	increase in motor and cognitive problems
80 – 200 mg/dl	**mood lability**, increased **incoordination**, **unsteady gait**, **deterioration of cognition** resulting in **errors** in attention, concentration, orientation, memory and judgement
200 – 300 mg/dl	**nystagmus, double vision, marked slurring of speech, alcoholic blackouts**
> 300 mg/dl	**Impaired vital signs**, more risks of respiratory failure, stupor, **coma and possible death**

F 10.1 Alcohol – Harmful use

- A pattern of use of alcohol that is causing **damage to physical or mental health of the user** and frequently associated with **adverse social consequences** of various kinds like road traffic accidents, marital arguments, assaults, rapes or arrests

F 10.2 Alcohol Dependance Syndrome

Diagnostic guidelines

A definite diagnosis of dependance should usually be made only if **three or more** of the following have been **present together at some time during the previous year**

1. A strong **desire** or sense of compulsion to take alcohol
2. Impaired capacity to **control** alcohol-taking behaviour.
3. A physiological **withdrawal** state on cessation
4. Evidence of **tolerance** to the effects of the alcohol
5. Progressive **neglect** of alternative pleasures or interests
6. Persisting with alcohol use despite clear evidence of **harmful consequences**.

F 10.3 Alcohol Withdrawal state

- A specific syndrome characterized by **physiological** and **psychological symptoms** that occurs after **complete cessation** or **reducing the amount of alcohol intake** that has been used regularly over a period of time

- Symptoms include

  - **Classical sign of alcohol withdrawal** - **tremulousness** (commonly called shakes or jitters) usually develops **6 - 8 hours** after cessation of drinking
  - **psychotic and perceptual** symptoms begin in **8 – 12 hours**
  - **seizures** in **12 – 24 hours**
  - **delirium tremens** **(DTs)** can occur anytime during **one week**

- **Other withdrawal symptoms**

  - general irritability
  - gastrointestinal symptoms (eg – nausea, vomiting)
  - **mild autonomic overactivity -** anxiety, arousal, sweating, facial flushing, tachycardia, palpitations and mild hypertension

- Conditions that **may predispose or aggravate** withdrawal symptoms, includes
  - fatigue
  - malnutrition
  - physical illness
  - depression

F 10.4 Alcohol Withdrawal state with delirium (delirium tremens)

- Is a **state of confusion of rapid onset characterized** by **acute decline** in both **level of consciousness** and **cognitive functions caused by withdrawal from alcohol**

- **Other features**
  - tremors
  - abnormalities of **mood**
  - **perceptual distortions,** most frequently visual or tactile hallucinations
  - fluctuating levels of **psychomotor activity** ranging from hyperexcitability to lethargy
  - **Sleep cycle impairment**
  - Symptoms of **autonomic hyperactivity** such as tachycardia, diaphoresis, fever, anxiety, palpitations and hypertension

F 10.5 Alcohol-Induced Psychotic Disorder

- A **cluster of psychotic phenomena** that occur **during or immediately after alcohol use (usually within 48 hrs)** and are characterized by
  - **vivid hallucinations** (typically **auditory**, but often more than one sensory modality)
  - **delusions** (often paranoid or persecutory nature)
  - **psychomotor disturbances** (excitement or stupor)
  - **abnormal affect** may range from intense fear to ectasy

- **Sensorium** is usually **clear**

- **Late onset psychotic disorders –** with onset **more than 2 weeks** after alcohol use
- The disorder typically resolves at least **partially** within **1 month** and **fully** within **6 months**

F10.6 Alcohol – Induced Amnestic Disorder

The primary requirements for this diagnosis are

- impairment of **recent memory** (learning of new material) and **disturbances of time sense** (rearrangement in chronological order)
- **no defect in -** immediate recall
  - level of consciousness
  - cognitive functioning
- History or objective evidence of **chronic use of alcohol**

Includes **Korsakoff's Syndrome**

Wernicke – Korsakoff Syndrome

- Common pathophysiology – **Thiamine deficiency**

Clinical Features

Wernicke's encephalopathy - acute condition

- Global confusion
- Ataxia (affecting primarily the gait)
- Opthalmoplegia (horizontal nystagmus, lateral orbital palsy, gaze palsy)

Korsakoff's syndrome – chronic condition

- **Impaired recent memory** and **anterograde amnesia** in an alert and responsive patient

Treatment

- **Thiamine** supplementation (100 mg two or three times a day)
- Wernicke's encephalopathy is **completely reversible** with treatment
  Korsakoff's syndrome only **20%** of patients **recover**

Alcohol – Induced Mood Disorder

- Heavy intake of alcohol over several days results in many of the **symptoms observed in major depressive disorder** (nearly **80%** of heavy drinkers)
- The intense sadness improves within several days to 1 month of abstinence

Alcohol – induced anxiety disorder

- Almost **80 %** of alcoholic patients reports anxiety symptoms in acute or **protracted alcohol withdrawal state**
- The sypmtoms are likely to diminish and subsequently disappear with time alone

Management – to teach patient how best view and deal with the temporary sadness or anxiety through **education and cognitive behavioral treatment**

Management

- Investigations
- Pharmacological management
- Psychological management

Investigations

For assessement of physical health complications

Routine investigations - CBP , CUE , blood sugar,chest x-ray

Specific investigations - LFT, RFT, Lipid profile, HbsAg, HIV

Psychological tests - Personality traits assessment

Neuropsychological tests – Mini Mental Status Examination(MMSE)

Biological Markers of Alcoholism

- **Aspartate aminotransferase (AST) - raised**
- **Alanine aminotransferase (ALT) - raised**
- **AST/ALT > 2**
- **Gamma glutamyl transferase (GGT) - increased activity**
- **Mean corpuscular volume (MCV) - increased**
- **Adenylate cyclase (platelet) - decreased activity**
- **Erythrocyte aldehyde dehydrogenase - decreased activity**
- **Carbohydrate deficient transferrin (CDT) - increased levels**

Acute Pharmacological treatment

Intoxication/ Withdrawal – hydration, vitamin replacement and detoxification, supportive treatment

Detoxification of alcohol

Is the **elimination of alcohol from the body** and the term has been used in the **treatment of dependance,** in the process of achieving a **substance free state**

Methods of detoxification in withdrawal state

- Gradual reduction of alcohol in decreasing amounts
- Abrupt cessation with specific medication which have cross tolerance – **benzodiazepines**

  have some specific pharmacological properties to suppress withdrawals – **carbamazepine** (800 mg per day)

Pharmacological management of alcohol withdrawals

The primary medications to control alcohol withdrawal symptoms - **benzodiazepines**

CLINICAL PROBLEM	DRUG	ROUTE	DOSAGE	COMMENT
Tremulousness and mild to moderate agitation	**Chlordiazepoxide**	**Oral**	**25-100 mg every 4-6 hrs**	Initial dose can be repeated **every 2 hrs until patient is calm** ; subsequent doses must be individualized and titrated
	Diazepam	**Oral**	**5-20 mg every 4-6 hrs**	
	Lorazepam	**Oral**	**2-10 mg every 4-6 hrs**	
Withdrawal seizures	**Diazepam**	**IV**	**0.15 mg/kg at 2.5 mg/min**	**Give until patient is calm;** subsequent doses must be individualized and titrated
Delirium tremens	**Lorazepam**	**IV**	**0.1 mg/kg at 2.0 mg/min**	

Long term Pharmacological management

Deterrent agents - Alcohol sensitizing drugs act through definite chemical mechanisms to deter the person from drinking

Disulfiram (250 mg per day) - **inhibit** the activity of **aldehyde dehydrogenase**, so alcohol use results in the **accumulation of toxic levels of acetaldehyde**

Anti-Craving agents - Acamprosate 666 mg TID , Naltrexone 50 mg OD, Topiramate 50 mg OD, SSRI's

Psychological management

Essentially include **assessment of the patient** and **providing rehabilitation services**

ASSESSMENT - PURPOSE

- To arrive at a **diagnosis**
- To ascertain **severity** and **extent** of the problem
- To identify patient's biological, psychological,financial and social **stressors** responsible for his dependance
- Choosing **appropriate treatment** alternative
- Establishing **constructive therepeutic alliance**

Rehabilitation

For most patients rehabilitation includes **3 components**

- **Continued efforts to increase and maintain high levels of motivation for abstinence**
- **Work to help the patient readjust to a lifestyle free of alcohol**
- **Relapse prevention**

These can be achieved by counseling in following forms

- Individual psychotherapy
- Group therapy
- Family therapy

Counseling sessions aims at

- Introduce and engage a patient in treatment to **enhance motivation** for treatment

- To **deglamorize alcohol use**, correct misconceptions regarding alcohol use and treatment

- **Install optimism** in the patient and provide a **realistic feedback of the harmful affects** already caused. It simultaneously emphasize the **potential reversibility of the conditions** and talks regarding need to abstain and treatment planning

- To impart the **coping skills for tackling provocative situations** leading to intake of alcohol for an individual

- To **change reinforcement contingencies**, from substance use related rewards to sobriety related rewards

- To help patient improve **interpersonal functioning** and **enhancing social support**

- To help the patient solidify the gains following achievement of abstinence

Individual psychotherapy

In this therapist counsels **individual in isolation** and provides good environment for the patient to share all his feelings

Group Therapy

It is an assembly of **alcohol dependant patients** usually **5-10** in number, who meet regularly under **guidance of a professional therapist** for the purpose of **promoting abstinence** from alcohol and **recovery from addiction**

Family therapy

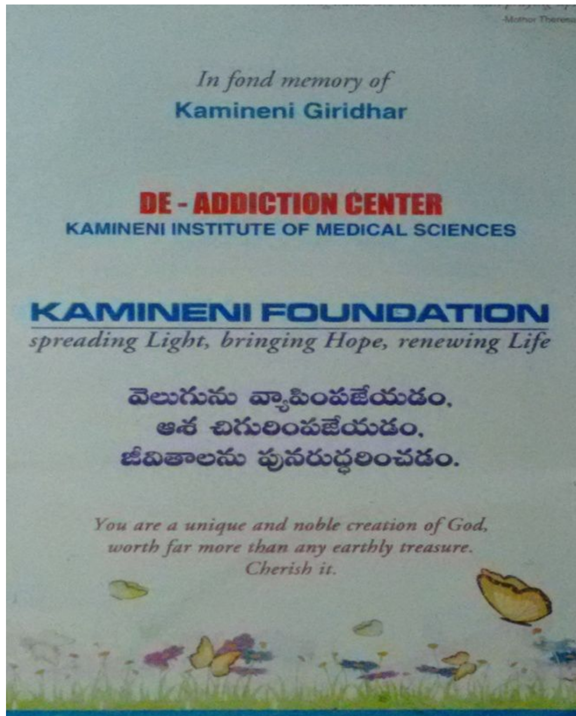
One can differentiate three levels of family involvement in the treatment of substance use disorders

- If alcohol dependance seems to be mainly **owing to dysfunctional patterns in the family** - **family as a unit** need to be treated with **intensive family or marital therapy**

- If alcohol dependance **has led to dysfunction in the family**, then less intensive but active and constant participation of family members shall be sought to treat the patient while focusing on **family as context**

- In all other cases, the minimum objective should be to involve family members to **help and support the patient** in achieving **sobriety** and maintaining it

Deaddiction Centre KIMS



Alcohol anonymous (AA)

- This is a **self-helf approach** and can be defined as the coming together of people with **similar problems to form small voluntary groups for mutual aid**

- They **share experience, strength and hope with each other** that may solve their common problem and help others to recover from alcoholism

- Only requirement for membership is **desire to stop alcohol**

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Relapse - Can be defined as return to the previous pattern of alcohol use in a dependant patient following a period of abstinence

Precipitants of relapse

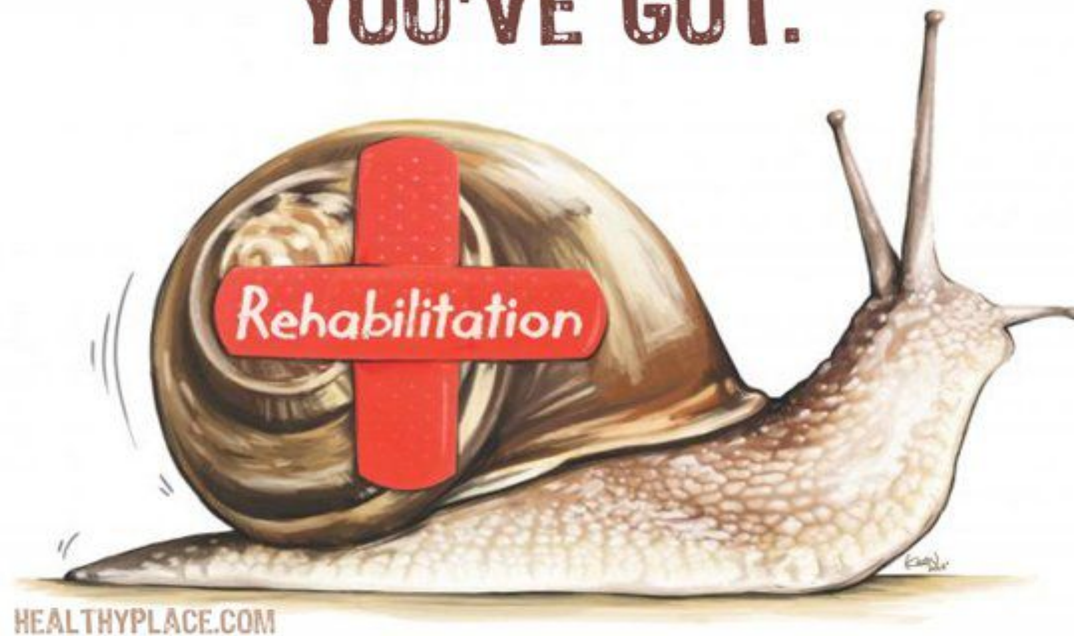
- **Affective variables - negative emotional states (most common)**
  - positive emotional states
- **Environmental variables - social pressure**
  - lack of recreational activities
  - interpersonal family problems
- **Physiological variables - craving**
  - protracted withdrawals
  - chronic illness or physical pain
- **Behavioral variables - coping skills or social skills deficits**
  - impulsivity

- **Psychiatric variables -** comorbid psychiatric illness
  - sexual trauma

- **Cognitive variables -** excessive guilt and shame
  - sense that life lacks meaning
  - **self perception of ability to cope with high risk situations**

Relapse prevention strategies

- Help the patient **- identify their high risk relapse factors** and develop **coping skills** to deal with them
- Help the patient **understand relapse as a process** and as an event
- Help the to develop and enhance a **supportive social network**
- Assess the patient for psychiatric disorders and facilitate treatment, if needed
- Help the patient work towards a **balanced life style**



Thank you