Alcohol use disorder

Description

Alcohol use disorder is a diagnosis made when an individual has severe problems related to drinking alcohol. Alcohol use disorder can cause major health, social, and economic problems, and can endanger affected individuals and others through behaviors prompted by impaired decision-making and lowered inhibitions, such as aggression, unprotected sex, or driving while intoxicated.

Alcohol use disorder is a broad diagnosis that encompasses several commonly used terms describing problems with drinking. It includes alcoholism, also called alcohol addiction, which is a long-lasting (chronic) condition characterized by a powerful, compulsive urge to drink alcohol and the inability to stop drinking after starting. In addition to alcoholism, alcohol use disorder includes alcohol abuse, which involves problem drinking without addiction.

Habitual excessive use of alcohol changes the chemistry of the brain and leads to tolerance, which means that over time the amount of alcohol ingested needs to be increased to achieve the same effect. Long-term excessive use of alcohol may also produce dependence, which means that when people stop drinking, they have physical and psychological symptoms of withdrawal, such as sleep problems, irritability, jumpiness, shakiness, restlessness, headache, nausea, sweating, anxiety, and depression. In severe cases, agitation, fever, seizures, and hallucinations can occur; this pattern of severe withdrawal symptoms is called delirium tremens.

The heavy drinking that often occurs in alcohol use disorder, and can also occur in short-term episodes called binge drinking, can lead to a life-threatening overdose known as alcohol poisoning. Alcohol poisoning occurs when a large quantity of alcohol consumed over a short time causes problems with breathing, heart rate, body temperature, and the gag reflex. Signs and symptoms can include vomiting, choking, confusion, slow or irregular breathing, pale or blue-tinged skin, seizures, a low body temperature, a toxic buildup of substances called ketones in the blood (alcoholic ketoacidosis), and passing out (unconsciousness). Coma, brain damage, and death can occur if alcohol poisoning is not treated immediately.

Chronic heavy alcohol use can also cause long-term problems affecting many organs and systems of the body. These health problems include irreversible liver disease (cirrhosis), inflammation of the pancreas (pancreatitis), brain dysfunction (encephalopathy), nerve damage (neuropathy), high blood pressure (hypertension),

stroke, weakening of the heart muscle (cardiomyopathy), irregular heartbeats (arrhythmia), and immune system problems. Long-term overuse of alcohol also increases the risk of certain cancers, including cancers of the mouth, throat, esophagus, liver, and breast. Alcohol use in pregnant women can cause birth defects and fetal alcohol syndrome, which can lead to lifelong physical and behavioral problems in the affected child.

Frequency

Alcohol use disorder is a very common condition. According to the 2015 National Survey on Drug Use and Health, about 16 million Americans have alcohol use disorder, which affects about 8 percent of adult men, 4 percent of adult women, and 2.5 percent of adolescents ages 12 to 17. In total, approximately 38 million people in the United States are considered by public health experts to drink too much alcohol, which includes high weekly use (15 or more drinks per average week for men, and 8 for women), binge drinking, and any drinking by pregnant women or individuals under age 21.

Heavy drinking, either with or without a diagnosis of alcohol use disorder, accounts for approximately 88,000 preventable deaths in the United States every year, including almost a third of driving fatalities, and is the third leading cause of preventable deaths in the United States after tobacco use and poor diet coupled with physical inactivity.

Causes

The causes of alcohol use disorder are complex. This condition results from a combination of genetic, environmental, and lifestyle factors, some of which have not been identified.

Variations in genes that affect the metabolism (breakdown) of alcohol in the body have been studied as factors that can increase or decrease the risk of alcohol use disorder. Gene variations that result in skin flushing, nausea, headaches, and rapid heartbeat when drinking alcohol discourage its consumption and reduce the risk of alcohol use disorder. Populations that have a higher prevalence of such gene variations, such as people of Asian or Jewish descent, tend to have a lower risk of alcohol use disorder than other populations.

The risk of alcohol use disorder is also related to variations in genes involved in nervous system function. Some of these genes play roles in various neurotransmitter pathways, in which chemicals in the nervous system called neurotransmitters and their receptors relay signals from one nerve cell (neuron) to another. Although variations in several of these genes have been associated with alcohol use disorder, it is unclear how these genetic changes influence the way in which the nervous system responds to alcohol.

Nongenetic factors also play a critical role in alcohol use disorder. Factors that increase the risk of this condition include depression or other psychiatric disorders and certain psychological traits, including impulsivity and low self-esteem. Stress, associating with others who abuse alcohol, and having easy access to alcohol also contribute to a person's risk.

Learn more about the genes associated with Alcohol use disorder

- COMT
- OPRM1
- SLC6A3

Additional Information from NCBI Gene:

- ADH1B
- ADH1C
- ADH4
- ALDH2
- CHRM2
- DRD2
- DRD3
- GABRA2
- GABRG3
- HTR2A
- SLC6A4
- TAS2R16

Inheritance

Alcohol use disorder does not have a clear pattern of inheritance, although many affected individuals have a family history of problems with alcohol or other substances. Children of people with alcohol use disorder are two to six times more likely than the general public to develop alcohol problems. This increased risk is likely due in part to shared genetic factors, but it may also be related to environment, lifestyle, and other nongenetic influences that are shared by members of a family.

Other Names for This Condition

- Alcohol addiction
- Alcohol dependence
- Alcoholism

Additional Information & Resources

Genetic Testing Information

- Genetic Testing Registry: Alcohol dependence (https://www.ncbi.nlm.nih.gov/gtr/co

nditions/C0001973/)

Patient Support and Advocacy Resources

- National Organization for Rare Disorders (NORD) (https://rarediseases.org/)

Clinical Trials

- ClinicalTrials.gov (https://clinicaltrials.gov/search?cond=%22Alcohol use disorder%22)

Catalog of Genes and Diseases from OMIM

- ALCOHOL DEPENDENCE (https://omim.org/entry/103780)

Scientific Articles on PubMed

- PubMed (https://pubmed.ncbi.nlm.nih.gov/?term=%28%28alcoholism%5BMAJR%5D%29+OR+%28alcohol+use+disorder%5BMAJR%5D%29%29+AND+%28%28alcoholism%5BTI%5D%29+OR+%28alcohol+use+disorder%5BTI%5D%29%29+AND+review%5Bpt%5D+AND+english%5Bla%5D+AND+human%5Bmh%5D+AND+%22last+1440+days%22%5Bdp%5D)

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Last updated January 1, 2018