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The Severe CNS effects of Alcohols: An Informative Article

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Abstract: ***Alcohols whether ethanol or methanol both are used in industrial as well as pharmaceutical purposes but carries a severe CNS (Central Nervous System) effects as per doses and concentrations taken by the humans such as anxiety, altered mood, memory loss and at high concentration stupor as well as unconsciousness.***

Keywords: Alcohols, CNS effects, Ethanol

1. Introduction

Pharmacologically, alcohols (organic compounds with hydroxy derivatives) are of two types ethanol and methanol named as ethyl alcohol and methyl alcohol. Methyl alcohol also known as wood alcohol, industriallyprepared by mixing the carbon monoxide and hydrogen at a temperature of 400^{O} C to 450^{O} C in the presence of mixture of ZnO and Cr_2O_3 as a catalyst and subjected to 200 atmospheres. In metabolic aspect, it is break down through alcohol and aldehyde dehydrogenase in to formaldehyde and formic acid respectively. In terms of toxicity, it carries primarily the CNS depressant effects and retinal damage although fomepizole (approved by the US FDA) is the choice of drug to treat methanol poisoning and ethanol is used as an alternative.

Ethanol (Ethyl alcohol) prepared by the fermentation process of starches as glucose and fructose ($C_6H_{12}O_6$) in the presence of enzyme zymase from the yeast. Ethanol shows a marked effect as per the increase in concentration. Basically, alcohol carries depressant action on neuron which on low concentration anxiety, euphoria and excitation as well as hesitation, self-restraint cautions are lost with altered mood and feeling. At high concentration, mental clouding, ataxia, impairment of memory, loss of judgement and drowsiness are the expected CNS effects of ethanol. Metabolically, gets widely distributed in the body which also crosses the blood brain barrier (BBB) and placenta freely.

It oxidizes up to the extent of 98% in liver but excretion from lungs and kidneys is neither noteworthy. To combat these effects in many deaddiction centres Naltrexone (approved by USA FDA) used in India. As a repugnance technique, Disulfirama inhibitor of enzyme and aldehyde dehydrogenase that has been used for chronic alcoholics after motivating and are very sincere to abandon the habit of. Due to the side effects of disulfiram as metallic taste nervousness, malaise and abdominal upset avoided by patients.

To conclude, both methyl alcohol and ethyl alcohol carries a negative effecton the CNS although inhibitors and medications are also available whatever is the age of person is so action must be taken to combat these effects on body and CNS by opening more and more deaddiction centres world widely.

Taken from Goodman and Gillman's the Pharmacological Basis of Therapeutics