

Short Commentary

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Abating the global impact of alcohol-induced liver disease: A call to action

Alex Madimo*; Tariq Salum; Sophia Mloli; Lucy Chuwa

St. Francis University College of Health and Allied Sciences, P.O.Box 175 Ifakara, Morogoro, Tanzania.

*Corresponding Author: Alex Madimo

St. Francis University College of Health and Allied Sciences, P.O.Box 175 Ifakara, Morogoro, Tanzania.

Email: madimoalex969@gmail.com

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Abstract

Alcohol-induced Liver Disease (ALD) is a serious health concern, resulting from progressive liver damage due to chronic alcohol consumption. This chronic exposure triggers inflammation, oxidative stress, and liver cell injuries, culminating in hepatic steatosis, alcoholic hepatitis, and cirrhosis. The intricate interplay between genetic susceptibility and environmental factors further complicates ALD's etiology. This short review discusses the global impact of ALD, encompassing its magnitude, risk factors, and health impacts. It also delves into diagnostic challenges, underscoring the importance of early detection to prevent irreversible liver damage. Moreover, it addresses the socioeconomic and health burdens linked to ALD, emphasizing on the need for a comprehensive approach encompassing public health policies, education, and healthcare strategies, alongside the importance of abstinence as a cornerstone in managing ALD.

Introduction

Alcohol-induced Liver Disease (ALD) encompasses disorders resulting from chronic, excessive alcohol consumption, notably alcoholic fatty liver, hepatitis, and cirrhosis. Alcoholic fatty liver, characterized by build-up of fat inside the liver cells can be benign and generally reversible with abstinence. Alcoholic hepatitis can presents with inflammatory changes, liver degeneration, and clinical symptoms like swollen liver and abdominal pain. Cirrhosis, the most severe form, involves scar tissue replacing normal liver tissue, leading to disrupted blood flow, palmar erythema, clubbing, and fatty infiltration. Individuals with alcoholic cirrhosis face a heightened risk of liver cancer. Diagnosis relies on biopsies, with laboratory tests, MRI, CT scan and ultrasound [1]. Approximately 10 to 15 percent of alcoholics develop cirrhosis, but may survive it. Many are unaware that they have the condition, and about 30 to 40 percent of cirrhosis cases are discovered at autopsy. The 5-year survival rates for cirrhosis patients who cease drinking are 90%, compared with 70% of those

who do not stop drinking. However, for late-stage cirrhosis the survival rate is only 60% for those who stop drinking and 35% for those who do not [2]. Thus continuing drinking diminishes survival rates, underscoring the critical role of alcohol cessation in ALD management.

Scope of the problem

There is no other consumer product as widely available as alcohol and it is estimated that every 10 seconds a person dies from alcohol-related causes. Globally, one in three people drink alcohol (equivalent to 2.4 billion people) and 950 million are heavy drinkers [3]. Worldwide, 3.3 million deaths every year result from harmful use of alcohol, representing 5.9% of all deaths. Overall 5.1% of the global burden of disease and injury is attributable to alcohol. Within the age group of 20 to 39 years, approximately 25% of deaths are alcohol-attributable [4]. Excessive alcohol use was responsible for more than 140,000 deaths in the United States each year during 2015 to 2019,

or more than 380 deaths per day [5]. Overall alcohol-induced deaths generally increased from 2000 to 2020 but has rose more steeply in recent years. In 2019 and 2020, alcoholic liver disease was the most frequent cause of alcohol-induced deaths, followed by mental and behavioral disorders due to use of alcohol. Deaths from alcoholic liver disease increased by 23%, from 6.4 in 2019 to 7.9 in 2020 [6].

Alcoholic liver disease is on the rise among young people, killing about 22,000 Americans every year of which 25% of those deaths were of people in their 20s, 30s and 40s [7]. In 2021, it was estimated that around 62 percent of those aged 21 to 25 years in the United States were current alcohol drinkers, making highest rate of all groups. Those aged 21 to 25 also had the highest rates of binge alcohol use [8]. Thus, with this high-risk drinking on the rise across the nations, and without taking immediate measures, the health and economic burden of treating alcohol-induced liver disease, will more than double over the next decade.

Risks factors

Alcohol is toxic to the hepatocytes, thus excessive alcohol consumption by itself poses a great risk of developing ALD. Females are also more susceptible to the negative effects of alcohol, even with the same levels of alcohol intake as males. Additionally, being overweight, having viral hepatitis and Genetic profile changes of particular enzymes that are key to alcohol metabolisms such as Alcohol Dehydrogenase (ADH), Aldehyde Dehydrogenase (ALDH), Cytochrome P450 (CYP2E1) and catalase increases risks of developing alcoholic liver disease [9].

Alcohol consumption and health risks

Apart from causing Alcoholic-induced liver disease, the harmful use of alcohol is a causal factor in more than 200 disease and injury conditions. Excessive alcohol consumption, particularly through binge drinking, poses immediate health risks including injuries such as motor vehicle crashes, falls, drownings, burns, as well as various forms of violent acts, such as, homicide, suicide, or sexual assault. Engaging in risky sexual behaviors, such as unprotected sex with multiple partners, which can lead to unintended pregnancies and sexually transmitted diseases, including HIV. Additionally, there's a heightened risk of alcohol poisoning, a medical emergency stemming from elevated blood alcohol levels. Pregnant women face the threat of miscarriage, stillbirth, or giving birth to children with fetal Alcohol Spectrum Disorders (FASDs).

Persistent alcohol abuse can lead to the onset of chronic diseases and serious complications, encompassing high blood pressure, heart disease, stroke, liver issues, and digestive problems. Also, the risk of developing various cancers, including those involving the breast, mouth, throat, esophagus, voice box, liver, colon, and rectum, significantly increases. The immune system weakens, consequently elevating susceptibility to illnesses, while cognitive functions, including learning and memory, may deteriorate, leading to dementia and academic decadence [6]. Beyond the health consequences, the harmful use of alcohol causes significant social and economic losses to individuals and society at large. Socially, alcohol misuse can result in family conflicts, loss of employment due to under-performance.

Possible solutions and recommendations

Addressing the global burden of Alcohol-induced Liver Disease (ALD) requires a multifaceted approach encompassing public health policies, education, and healthcare strategies. Governments can implement stringent alcohol control policies, including raising taxes on alcoholic beverages to make them less affordable and restricting their availability. While raising taxes on commercial beverages is one approach to mitigate ALD, on the other hand it poses the risk of encouraging higher consumption of locally brewed cheap alcohol. To counteract this, a comprehensive strategy which takes into account investing in public health campaigns to raise awareness about the risks of excessive alcohol consumption regardless of price, and supporting programs that promote the availability and affordability of non-alcoholic alternatives must be implemented. By combining these measures, we can effectively reduce the overall alcohol consumption and mitigate the associated health risks particularly among vulnerable populations. Additionally, investing in alcohol screening and counseling programs within healthcare settings can identify individuals at risk early, while strengthening alcohol treatment programs and improving access to rehabilitation services are crucial for those already affected. Furthermore, fostering international collaboration to share best practices and research on ALD prevention and treatment can contribute to a more coordinated global effort.

Conclusion

There is no level of alcohol consumption identified as safe when it comes to human health. Although some public health regulations have attempted to set safe levels, it is well understood that some populations can tolerate alcohol more than others, and even within these populations, individuals are differently susceptible. The risk to the drinker's health starts from the first drop of any alcoholic beverage [10], thus total avoidance is the only way to possibly reverse the damage or prevent the situation from worsening. For individuals who find it difficult to stop alcohol use they should be encouraged to discuss treatment options with a mental health counselor or a doctor to get appropriate medical help.

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