Review

Alcohol-related problems and liver disorders

HEPATOLOGY FORUM

doi: 10.14744/hf.2022.2022.0045

Alcohol-related medicosocial problems and liver disorders:
Burden of alcoholic cirrhosis and hepatocellular carcinoma in Turkiye

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Abstract

The World Health Organization 2018 report stated that 2.3 billion persons over 15 years old consume alcohol, and a total of 3.0–3.3 million people died because of uncontrolled or harmful alcohol intake in 2016. Injuries, accidents, liver cirrhosis, and other medical disorders are mainly responsible for alcohol-related disability and deaths. After emphasizing the importance of alcohol-related disorders and necessary universal precautions, we focus on alcohol consumption features and alcohol-related cirrhosis and hepatocellular carcinoma in Turkiye. It is estimated that alcohol per se is responsible for 12% of cirrhosis and 10% of hepatocellular carcinoma cases. Additional factors such as hepatitis B virus and hepatitis C virus infections have markedly increased the risk of the development of hepatocellular carcinoma in alcoholic cirrhosis.

Keywords: Alcohol-related disorders; hepatocellular carcinoma; liver cirrhosis; Turkiye.

Introduction

According to the World Health Organization (WHO) 2018 report, it is estimated that 2.3 billion persons over 15 years old (43% of the world population; 61% men and 39% women) consume alcohol.[1,2] More than 50% of total alcohol consumption was recorded in North America, Europe, and west Pacific countries. In these countries, per-person alcohol consumption (9.8 L in Europe and 8.0 L in America) is much higher than the world mean alcohol consumption (6.4 L per person).[1] It should be mentioned that per-person alcohol consumption in Europe decreased from 12.3 L in 2005 to 9.8 L in 2016. On the other hand, daily alcohol consumption is 33 g/day (changing between 26 and 40 g/day), which is much higher in active and regular drinkers than in free-style alcohol takers. Another interesting fact is 25% of world alcohol consumption is not registered. Most of them are homemade alcohol or come from illegal alcohol production. In 2016, the Turkish official data stated that per-person alcohol consumption is about 2 L in Turkiye and 0.7 L (35%) of it is unregistered products. The projection for the near future suggests that there will be no change in the next 5 years in the alcohol consumption profile in Turkiye.[1,3]

Two parameters in alcohol consumption are very important in the development of alcohol-related disorders or pathologies: total amount of daily alcohol consumption (g/day and duration) and style of alcohol consumption. Abnormal alcohol drinking such as "binge drinking" is more frequently associated with serious accidental, social, and medical problems and mortality risk.[4] Binge drinking is heavy alcohol consumption characterized by 5–6 units in men and 4–5 units in women in 2 h; 1 unit changes between 8 g and 14 g of alcohol, mean of 10–12 g.

It is an alarming finding that the age of starting alcohol consumption decreases in countries with high amounts of alcohol consumption per capita. Field studies indicate that 50%–70% of the 15-year-old young population drinks alcohol without any differences between boys and girls. Heavy episodic drinking, which is 60 g or more alcohol in one drink, and binge drinking are dangerous and seen more frequently (40%–50%) in 20–25-year-old young population. This dangerous alcohol consumption behavior is less frequent (10%) in Eastern Mediterranean and Middle-East countries. In general, religion, culture, family-life, climate, social-economical factors, alcohol policies of countries and states and individual social and psycological disorders and genetic all may have some effects on alcohol consumption attitudes.[1,2,5]

Two parameters are very important in the evaluation of medical and social consequences of alcohol consumption: (1) mortality rate, which is due to alcohol-related diseases and dangerous behaviors and (2) alcohol-related loss of life and work power defined as "disability-adjusted life years" (DALYs). According to WHO reports, there are approximately 200 disorders (e.g., tuberculosis, cancer, and cirrhosis and its complications) and harmful events (e.g., accidents, crime, self-harm, and suicide).[1,2] On the other hand, "alcohol use disorders" (AUDs) are terminologically much preferred by experts instead of alcoholism because AUD defines alcohol-related behavioral abnormalities and psychological changes or problems.[6]

"AUDs" Symptoms and Behavioral Changes

1. Taking much more alcohol in a longer time than what has been planned.
2. Continuous thinking and trying not to take alcohol or to take alcohol less than before.
3. Being very busy thinking about alcohol intake, how to stop consuming alcohol, and being free from alcohol effects.
4. Uncontrolled and unpreventable desire and urgent need to take alcohol.

How to cite this article: Cakaloglu Y. Alcohol-related medicosocial problems and liver disorders: Burden of alcoholic cirrhosis and hepatocellular carcinoma in Turkiye. Hepatology Forum 2023; 4(1):40–46.

Received: November 21, 2022; **Accepted:** November 21, 2022; **Available online:** January 17, 2023

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5. Problems in doing daily life duties at home, at work, or in school.
6. Personal, familial, or social and workplace problems triggered by uncontrolled alcohol intake.
7. Wishing to give up due to failing in social, professional, and creative activities because of uncontrolled alcohol intake.
8. Continue uncontrolled alcohol consumption even in dangerous situations such as driving, working in dangerous duties, and doing some unacceptable activities.
9. Continue alcohol consumption despite having alcohol-related or alcohol-exacerbated physical, psychological, and social problems.
10. Tolerance: (a) to reach the desired level of alcohol effects or intoxication needing (requiring to take) more alcohol than before, (b) the same level of alcohol does not make the same effects anymore.
11. Alcohol abstinence: (a) the presence of typical findings of alcohol abstinence syndrome and (b) the necessity of benzodiazepines or similar medications to overcome alcohol abstinence syndrome.

Alcohol-Related Medicosocial Problems: Mortality and DALYs

In 2016, a total of 3.0–3.3 million people died worldwide (5.4% of total deaths) because of uncontrolled or harmful alcohol consumption. This mortality rate is very high in the younger population (13.5% in 20–39-year-old group).[1,2,5] Underlying causes of alcohol-related mortality are unintentional (18%) or intentional (8%) accidents and injuries (total 26%), mainly liver cirrhosis and other gastrointestinal diseases (21%), cardiovascular pathologies (19%), infections (13%), cancers (12.5%) and others (5%).[1,2] Moreover, DALYs was 132.6 million years in 2016, and men had 3 times more death and 5 times more DALYs than women (Fig. 1a, b). Although AUD is much more prevalent in high-income countries, alcohol-related accidental and medical deaths are more frequent in low- and middle-income countries. Overall one million people lost their lives in 2016 due to alcohol-related unintentional or intentional accidents and injuries. The known underlying reasons are traffic accidents (400 000 deaths), self-injuries (200 000 deaths), and familial or nonfamilial violence (100 000 deaths). Unfortunately, half of the people who lost their lives in traffic accidents are the people who have not taken alcohol at all.[1,2]

Fighting Against Alcohol Use Disorders

AUD is a preferred terminology instead of alcoholic patients and alcoholism because it has a wider spectrum in terms of alcohol-related behavioral and psychological disorders. According to the number and severity of symptoms and behavioral changes, the diagnosis of AUD is classified as mild (2–3 symptoms), moderate (4–5 symptoms), and severe (≥6 symptoms).

In the newly developed AUD terminology, alcoholism, alcohol addiction, and alcoholic patients are defined as having severe AUD (last 4–5 symptoms; between 6 and 10 on the list), and, despite knowing the harmful effects of alcohol, persons who continue uncontrolled alcohol consumption are classified as having mild and moderate AUD (first 5 criteria). People with AUD are treated and/or rehabilitated in specialized clinics or hospitals, and governments must take necessary precautions to prevent uncontrolled and harmful alcohol consumption in reducing and stopping deaths and medicosocial problems.

The WHO reported that almost 100 countries that are mostly with upper and upper-middle income have national alcohol policies with strict

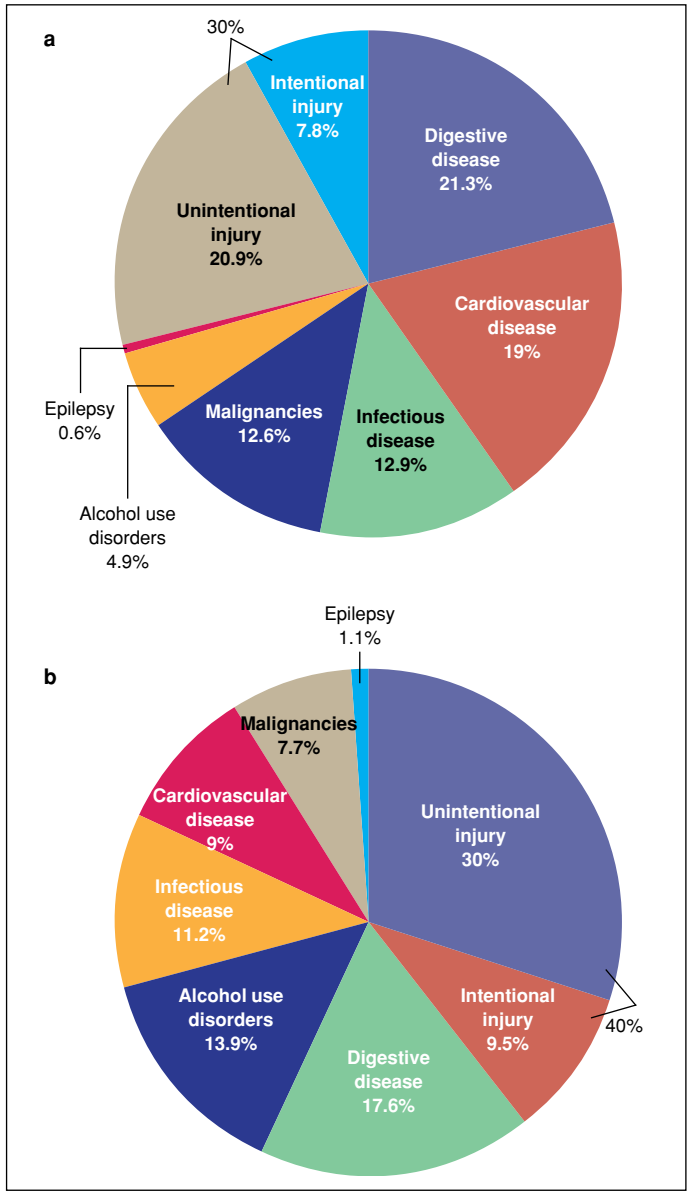

Figure 1. (a) Percentage of alcohol-attributable (AA) deaths, as percentage of all AA deaths by broad disease category, 2016. **(b)** Distribution of the alcohol-attributable (AA) burden of disease (in %)-related disability-adjusted life years (DALYs) by broad disease category, 2016.
Source: WHO 2018 report.

rules aiming to decrease alcohol consumption and its harmful effects. In the majority of these countries, alcohol sale has been forbidden to a person under 21 or at least 18 years old. On the contrary, there is no national alcohol policy and rules for alcohol sales and consumption in poor countries with low and very low incomes. The blood level of alcohol in drivers should be less than 0.05 promil in general, but it is <0.08 promil in 37 countries with national alcohol policies.[1] National alcohol policy instructions in terms of regulating and limiting the sale of alcohol and decreasing its consumption appear to be effective in young drinkers between 15 and 24 years of age.

It can be succeeded as it has been in the smoking issue; effective preventive efforts will result in a significant reduction in alcohol consumption and

its harmful effects including alcohol-related medicosocial complications, disorders, and mortalities. The most successful limitations are first five regulations depicted below in the prevention of alcohol-related harmful effects.[1–5] The WHO data confirm that these precautions are effective.[1]

Precautions and Regulations to Prevent or to Decrease Alcohol Consumption

1. Age limit to prevent alcohol sale to young population; no alcohol sale if ≤21 years old.
2. Regulations of alcohol sale in terms of location and time to decrease alcohol consumption.
3. Strict rules in terms of forbidden driving after consuming alcohol. Blood alcohol level should be ≤0.05 promil. In higher alcohol levels, the penalty should be high to be deterring.
4. Increasing taxes and high price policy for alcoholic beverages appear to be effective.
5. Public education and awareness about alcohol-related medical and socioeconomic problems.
6. Necessary facilities for the treatment and rehabilitation of people with AUD, which include medical therapy and improvement in socioeconomic status.
7. Continuous information and education about dangerous and harmfull alcohol drinking and its prevention in hospitals, outpatient clinic, schools, and press.

Alcohol-Related Liver Disorders

The amount of alcohol consumption and frequency of alcohol-related liver disorders and deaths have shown striking differences among countries and populations. Table 1 shows the WHO 2018 report on alcohol consumption, AUD, and liver diseases of four countries differing in terms of location, religion, and cultural features.[1] Alcohol per se is a very important and most frequent cause of liver diseses and their related mortality. The presence of other factors including viral hepatitis and obesity-related metabolic liver disease, in addition to alcohol, may cause more common and rapidly progressive liver diseases including cirrhosis and liver cancer.

In the USA, hepatitis C, alcohol usage, and "nonalcoholic fatty liver disease"(NAFLD) are, respectively, the most frequent three reasons for chronic liver disease, cirrhosis, and hepatocellular carcinoma (HCC). In the fourth place is a mixed etiology consisting of alcohol and HCV-related cirrhosis with 15% frequency.[7,8] Alcohol per se or with other factors is responsible for at least 50% of patients with cirrhosis and HCC.[7–9] The frequency of the coexistence of alcohol and viral hepatitis (hepatitis C or B) is between 5% and 20% in other countries.[8–13]

Alcohol consumption in Turkiye, which consists of 10% of the older population than the 15-year-old population, is markedly high at 28.5 L/year (men: 33.3 L; women: 11.9 L). This means Turkiye has a relatively small population but consuming much more alcohol than the average volume. Alcohol is responsible for cirrhosis and HCC in approximately 10%–15% of cases. We discuss this in the following sections.

Mortality and Morbidity of Alcohol-Related Liver Disorders

Alcohol-related liver diseases are not in the first line in terms of DALYs and alcohol-related death numbers at WHO publications, whereas alcohol is well established and is most frequently seen etiologic factor in cirrhosis and HCC (>50%) in countries with upper or middle-upper income such as North American and Europe.[5,7–9] The mortality rate due to liver cirrhosis has increased 4 times from the 1970s to the 2020s in England, and uncontrolled alcohol consumption appears to be responsible for 3 of every 4 cirrhotic deaths.[10] Besides, in North America, in which alcohol is the most frequent (>60%) etiology of cirrhosis, mortality due to alcohol-related cirrhosis and its complications have increased by 79% from 1990 to 2016.[13] It has been shown that there are striking differences in alcohol-related cirrhosis and cirrhosis-related death frequency in different regions of the world (Fig. 2).

The relatively low frequency of cirrhosis-related deaths in countries (North America and Europe) with a high prevalence of alcoholic cirrhosis may be due to less frequency of nonalcoholic causes of cirrhosis such as hepatitis B and hepatitis C (Table 2a, b). This finding is in agreement with the information that cirrhosis-related deaths are more frequent in countries with a low prevalence of alcohol-related cirrhosis. It is also reported that cirrhosis-related deaths are much less in rich countries with upper or upper-middle income than in poor countries as there is more opportunity for liver transplantation and other therapeutic options.[1,13] In countries where viral hepatitis is more prevalent, HBV and HCV contributions to cirrhosis and HCC burden are more important and increased relative to alcohol.

In addition to high alcohol consumption, some accompanying or additional pathologies such as metabolic syndrome, viral hepatitis, and drug-induced liver injuries should be considered when a patient

Table 1. Alcohol consumption data in Turkiye, Germany, Israel, and South Korea (WHO)

	Turkiye	Germany	Israel	South Korea
No alcohol % (M/F)	90 (85/95)	21 (12/29)	45 (32/58)	36 (23/49)
Per capita alcohol (L/year)	2.0	13.4	3.8	10.2
Alcohol user (L/year)	28.0	17.0	7.0	16.0
AUD (%)	4.8	6.8	5.9	13.9
Alcohol dependence (%)	1.6	3.5	3.3	5.5
Cirrhosis exitus* % (M/F)	14.2/7.5	18.9/7.8	6.6/3.3	18.5/4.5
Alcohol-related** % (M/F)	37.2/10.9	78.6/66.4	52.8/36.9	38.5/24.8
Alcoholic cirrhosis exitus (n)	1643	11 115	170	4590

*: Age-related mortality rate (1/100 000); **: From WHO publication (in Turkish data, only 10%–15% of patients with cirrhosis are alcohol-related); WHO: World Health Organization; M: Male; F: Female; AUD: Alcohol use disorders.

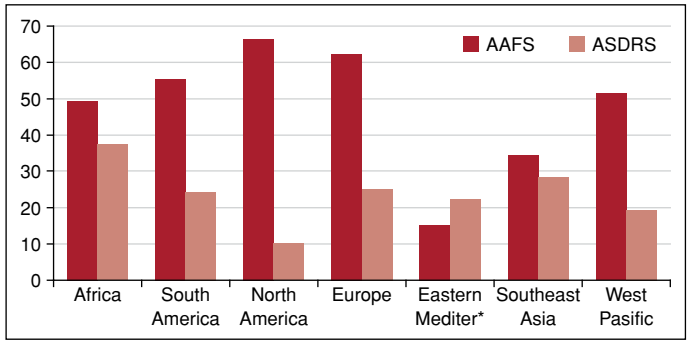

Figure 2. World data for frequency of alcohol-related cirrhosis and overall death rates from cirrhosis (alcohol-related or other etiologies).

Source: Stein E, et al. J Hepatol 2016; 65: 998-1005. AAFS: Alcohol Attributable Fraction of Cirrhosis (%); ASDRS: Age-Standardized Death Rate from Cirrhosis (per 100.000 person); *: Türkiye is located in Eastern Meditarennean region.

Table 2a. Factors indepedently associated with AAF[13]

Factor	Regression coefficient (95% CI)
Daily alcohol intake (moderate/heavy)	11.11 (7.57–14.66)*
Per capita alcohol consumption (L/year)	2.04 (1.45|2.63)*
Drinkers among the population (%)	0.26 (0.16–0.36)
Per capita income/year	-0.11 (-0.18 to -0.04)
HCV seropre	-4.12 (-5.96 to -2.28)*

AAF: Alcohol-attributable fraction of cirrhosis; HCV: Hepatitis C virus; *: P<0.01, from the data of 168 countries.

Table 2b. Factors indepedently associated with ASDR[13]

Factor	Regression coefficient (95% CI)
HBV seroprevalence	7.52 (4.42–10.61)*
HCV seroprevalence	4.90 (1.40–8.37)*
Drinkers among the population (%)	0.16 (0.04–0.27)
Per capita income/year	-0.34 (-0.48- -0.20)

ASDR: Age-standardized death rate from cirrhosis; HCV: Hepatitis C virus; HBV: Hepatitis B virüs; *: P<0.01, from the data of 168 countries.

is evaluated. On the other hand, in countries with less alcohol consumption and alcohol-related cirrhosis, there is a tendency to conceal alcohol intake as the main factor or accompanying agents associated with hepatitis B or hepatitis C.

Alcohol Consumption in Turkiye

According to the Turkish Ministry of Health data, the prevalence of the alcohol-using population in 2012, 2014, and 2016 has not shown marked changes, although it seems there is a nonsignificant reduction in 2016 compared with 2014 (Fig. 3). This can be explained by increased prices of alcoholic beverages and also nonregistered alcohol consumption. The frequency of heavy episodic alcohol intake or binge drinking is 5% (men: 9%; women: 2%) in Turkish adults. This is the lowest rate in European countries as it is 37% in Denmark, 33% in Germany, 17% in Poland, and 10% in Greece.[14]

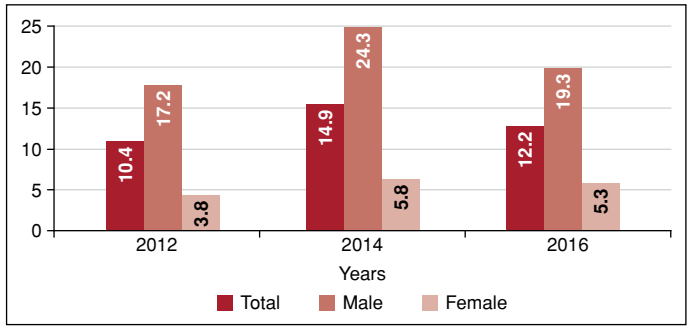

Figure 3. Alcohol Consumption in Turkiye between 2012 and 2016. Turkish Ministry of Health data on per capita (L/year).

The data from a public survey conducted by the Police Department of the Ministry of Interior that included 42 635 persons older than 15 years of age (52% women) in 26 cities of Turkiye revealed important information about alcohol consumption and public opinion on alcoholism. Production and consumption patterns of alcoholic beverages showed the same changes, which are characterized by a marked increase in export products (such as whisky, room, vodka, and wine) and a striking decrease in registered national products (such as raki) during the last 10 years. For example, raki production has decreased from 46 380 793 L in 2010 to 27 763 382 in 2019. These are registered production numbers published by official authorities. In addition, there is a considerable amount of homemade and unregistered (illegal) mass production of raki, consisting of approximately one-third of the total amount. The most important reason for this high amount of illegal production is the very high increase in the price of raki and other alcoholic beverages during the last few years. It should be reminded that high price policy on alcoholic beverages is one of the most effective ways to decrease alcohol consumption, which is strongly advised by the WHO.

Turkish Ministry of Interior, Police Department Public Survey on Alcohol[15]

Participants in the public survey	42 657 persons
(≥15 years old)	(52% female; 48% male)
Consumed alcohol at least one time	22.0% (men 34%, women 10%)
Active drinkers (regular alcohol consumers)	22.1%
Consumed alcohol during last 12 and 6 months	12.6% and 8.6%
Public opinion about alcohol consumption (okay/not okay)	18.5% and 81.5%
Alcohol drinking rate before drug addiction	44.4%
Public opinion on alcohol-related risks	
Serious (heavy) risk 82.8% + moderate 12.7%	95.5%
Mild risk or no risk	4.5%

Alcohol-Related Liver Cirrhosis and HCC in Turkiye

The etiologic role of alcohol in liver cirrhosis and HCC in Turkiye is depicted in Tables 3 and 4. There are no prospective studies on this issue, and available data are based on large-scale retrospective trials, which search the etiologic role of alcohol in cirrhosis and

Table 3. Role of alcohol in the etiology of liver cirrhosis in Turkiye

Reference	Number	HBV (%)	HDV (%)	HCV (%)	Alcohol (%)	Autoimmune liver disease (%)	*NAFLD/others (%)
Okten[16]	316	29	8	15	16	3	29
Bayan et al.[17]	505	55	18	8	3	–	16
Basyigit et al.[18]	135	39	?	18	13	7	23
Bassullu et al.[19]	170	52	5	15	10	7	11
Celik et al.[20]	255	29	5	21	18	3	26
Idilman et al.[21]	898	34	6	18	8	10	23
Topdagi et al.[22]	100	47	5	11	25	3	32**
Yildirim et al.[23]	4647	32	?	13	10	7	38

*: We think that most of these patients diagnosed with cryptogenic cirrhosis belong to the nonalcoholic fatty liver disease/nonalcoholic steatohepatitis (NAFLD/NASH) group. There is a metabolic liver disease group (Wilson's disease, hemochromatosis, and alfa-1 antitrypsin deficiency) consisting of 5% of patients. **: In one series, there is a small group of patients (3%) with Budd Chiari syndrome. HBV: Hepatitis B virüs; HDV: Hepatitis D virus; HCV: Hepatitis C virus; NAFLD: Non-alcoholic fatty liver disease.

Table 4. Role of alcoholic cirrhosis in the etiology of hepatocellular carcinoma

Reference	Number	HBV (%)	HDV (%)	HCV (%)	Alcohol (%)	*NAFLD/others (%)
Uzunalimoglu et al.[24]	207	50	7	23	10	10
Ozer et al.[25]	35	66	ND	29	ND	11
Alacacioglu et al.[26]	221	45	ND	26	6	23
Bassullu et al.[19]	84	62	4	18	7	9
Dogan et al.[27]	98	60	2	16	15	9
Can et al.[28]	963	58	4	15	14	9
Akkiz et al.[29]	1332	61	ND	21	15	3
Ekinci et al.[30]	545	53	7	24	4	21
Guzelbulut et al.[31]	1802	54	3	19	4	20
Demirtas et al.[32]	57	39	ND	10	7	44**

*: We think that most of these patients belong to the nonalcoholic fatty liver disease/nonalcoholic steatohepatitis (NAFLD/NASH) group. In addition, there is a metabolic liver disease group (Wilson's disease, hemochromatosis, and alfa-1 antitrypsin deficiency) and others consisting of 5%–7% of patients. **: This group includes patients with NAFLD (15%), autoimmune liver disease (8%), and others. HBV: Hepatitis B virüs; HDV: Hepatitis D virus; HCV: Hepatitis C virus; NAFLD: Non-alcoholic fatty liver disease; ND: Not Determined.

in HCC. Two different group references (one related to cirrhosis and the other to HCC etiology) are used to detect the etiologic role of alcohol. We have evaluated both cirrhosis and HCC groups because it is well established that almost 90% of HCC developed in cirrhotic patients. According to the data of several studies, each one including more than 100 patients, we have detected that 12% of liver cirrhosis and 10% of HCC are related to alcohol consumption in Turkiye.[16–32]

It is an important finding that most studies have had a large group of patients diagnosed as cryptogenic cirrhosis (between 15% and 30%) and cryptogenic HCC (between 3% and 21%). We think that most of these patients belong to the NAFLD/nonalcoholic steatohepatitis (NASH) group. There should be a small group of patients (<5%) that conceals alcohol use for social and/or religious reasons. It is obvious that we need to have more detailed and large-scale new prospective trials. The prevalence of alcohol-related cirrhosis and/or HCC in liver transplant series is about 10% in Turkiye.[33,34] Alcohol-related cirrhosis and HCC are more frequent in North America and Europe as their frequency has increased by 30% during the last two decades and they were determined to be one of the three most prevalent etiologic factors.[35–37]

HBV and HCV Infection in Alcohol-Related Liver Disease

It has been mentioned that HBV and HCV infections are more prevalent in patients with AUD, in particular in patients with alcoholic cirrhosis. It is a well-known epidemiologic picture in both Turkiye and other countries. This combination of viral hepatitis and alcohol is important for two reasons. First, it is difficult to define which one is responsible for cirrhosis as the main player. Second, how important it is for clinical prognosis and complications such as HCC. The first one can be identified by anamnesis, including past history, total amount of alcohol consumption, drinking style, and clinical and laboratory features. For the second one, we all know from our own experiences and from the literature that the combination of alcohol and HBV or HCV results in poor prognosis, more frequent HCC complications, and an increased mortality rate.[37–40]

Italian "Dionysos" study has demonstrated that drinking alcohol >30 g/day in patients with HCV or HBV infections markedly increases the risk of cirrhosis and HCC. According to the results of this important study, population attributable risk percent in terms of cirrhosis and HCC development is much higher in HCV- and HBV-infected patients (92.4%) than in only alcohol consumers without HBV and HCV (65%).[38] There are two important retrospective trials in Izmir,

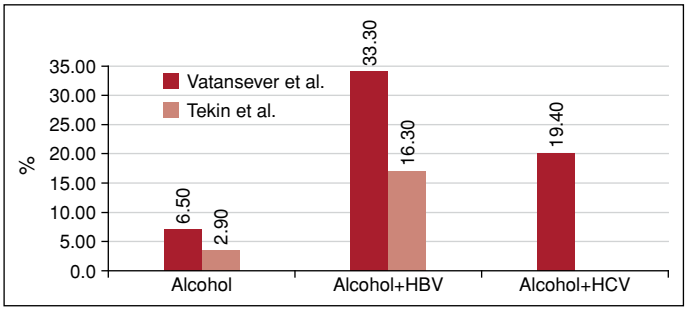

Figure 4. Increased risk of hepatocellular carcinoma (HCC) prevalence in Turkish population with alcoholic cirrhosis and concomitant HBV and HCV infections.

Tekin et al.[36] Alcohol 105, alcohol+HBV 43 patients (Total 148 pts). Vatansever et al.[37] Alcohol 628, alcohol+HBV 159, alcohol+HCV 31 patients (Total 806 patients).

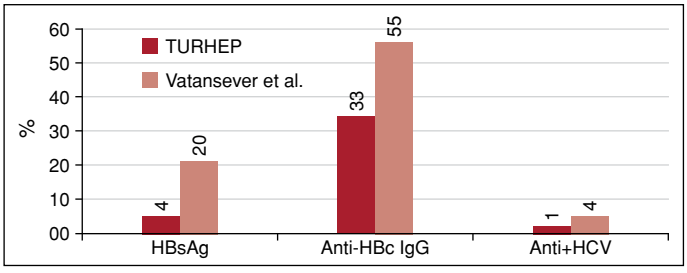

Figure 5. HBV and HCV prevalence in alcohol-related liver cirrhosis in comparison of Turkish viral hepatitis epidemiology study (TURHEP) data.[37,38]

a city in Turkiye having a much higher amount of alcohol consumption. They investigated the prevalance and prognostic features and complications of viral hepatitis (HBV and HCV) in patients with alcoholic cirrhosis (Fig. 4).

Vatansever et al.[40] in their alcoholic cirrhosis series including 806 patients have clearly shown that the prevalence of HCC is much higher in patients with HBV or HCV infection (33.3% and 19.4%, respectively) than in patients without viral infections (6.5%). Tekin et al.[39] have compared HCC prevalence in 105 alcoholic cirrhosis patients with or without HBV infection. They found that HCC prevalence was much higher in patients with HBV (16.3%) than in patients without HBV (2.9%). These two studies also indicated that HBV and HCV seroprevalence is higher in alcoholic cirrhosis patients. When the results of the prevalence of HBV and HCV infections in alcoholic cirrhosis and normal Turkish adult population (Turkish Association for the Study of Liver Disease: TASL Epidemiologic Study) were compared, it was found that HBV and HCV seroprevalence is markedly higher in alcoholic cirrhosis than in normal adult population (HBsAg: 20% vs 4%; anti-HBc IgG: 55% vs 33%, and anti-HCV positivity: 4% vs 1%) (Fig. 5).[39,41]

AUD and viral hepatitis are very important public health problems to be prevented and treated. All people, in particular the young population (≥15 years), should be informed and educated about alcoholism and its unpleasant consequences including liver cirrhosis and cancers. The prohibition of alcohol sale to less than 21-year-old people and applying high prices and taxes policies can be effective in the reduction of alcohol consumption and risky behaviors in terms of alcohol drinking.

Safety Margin for Alcohol Intake

Is there a safety margin for consuming alcohol? How much alcohol one can consume without any harmful effects? Is it true that red wine is useful for cardiac disorders? We do not have exact and clear answers for these questions. But we know that long-term alcohol intake >30 g/day can cause cirrhosis in 15%–20% of these people. Rest may have milder problem such as fatty liver or cardiac disorders or some social problems. We know that there should be some genetic, epigenetic, and environmental factors related with the development of disorders and other harmful effects of alcohol consumption. The WHO declared that "there is no safety margin of alcohol intake," only safety margin is not to take alcohol.[1,2] There was a limit for women (<10–20 g/day) and men (<20–40 g/day) as a safety margin about two decades ago. Now, it is not available anymore. On the other hand, alcohol is a routine and inevitable part of social life in some culture and in most of the countries. People should be reminded of "no alcohol, no problem," "less alcohol, less problem," and "more alcohol, all problems." Let us say a Turkish statement for a solution to this difficult concept: "Azı karar çoğu zarar" (English version: "less is more").

Conclusions

Alcohol-related medicosocial problems and in particular liver disorders are increasing problems with a huge amount of DALYs and mortality rates all over the world. There is a considerable change in the prevalence of alcohol-related cirrhosis and HCC carcinoma in relation to cultural and religious features, socioeconomic status, and genetic predisposing factors. Turkiye is characterized by a relatively small (<10% of population) but regularly drinking population, which is responsible for alcoholic cirrhosis in 12% and HCC in 10% of patients. HBV and HCV infections are additional risk factors for increased HCC risk. Official precautions and restrictions to control dangerous and harmful alcohol consumption can be effective in declining alcohol-related DALYs and deaths. There is no safety margin for alcohol intake as WHO states that "No Alcohol, No Problem."

Peer-review: Externally peer-reviewed.

Conflict of Interest: The author have no conflict of interest to declare.

Financial Disclosure: The author declared that this study has received no financial support.

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