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Alcohol and COVID-19

Surve V. D.[1], Kamble S. A.[2] and Tompe T. H.[2]
[1]Associate Professor and [2]M. Sc. Student, Department of Post Harvest and Food Biotechnology, V D College of Agricultural Biotechnology, (VNMKV, Parbhani) Latur, (M.S.)

SUMMARY

Alcohol is a harmful substance that has an adverse effect on almost every single organ of your body and the risk of damage to your health increases with each drink consumed. Alcohol use, especially heavy use, weakens the immune system and reduces its ability to cope with infectious diseases, including COVID-19. Heavy Alcohol use is a risk factor for acute respiratory distress syndrome (ARDS), one of the most severe complications of COVID-19. Ethyl alcohol (ethanol or alcohol) is part of the cultural traditions of most societies, since the beginning of civilization. Evidence of obtaining alcohol by distillation dates from the year 1100 BCE. Although the history of alcohol abuse is as old as its production, alcohol consumption has become a public health problem since the 18th and 19th centuries, with the impoverishment of industrial workers. Ethanol in the form of alcoholic beverages is obtained by fermentation of sugars from cereals and fruits, while ethanol used in the production of pharmaceuticals and cosmetics, disinfectants, food additives, preservatives and fuels is obtained mostly by petrochemical. In the current context, excessive alcohol consumption weakens the immune system, making it more susceptible to infection with the SARS-CoV-2 virus. Alcohol consumption is also associated with certain types of cancer, including liver cancer.

INTRODUCTION

Alcohol consumption is associated with many physical ailments and mental disorders, which can make the individual susceptible to the new corona virus. This is because alcohol affects the immune system and thus increases the risk of developing certain diseases. Alcohol has long and short-term effects on every organ in the body, so there is no “safety” limit to consumption. Moreover, the risk of deteriorating health increases with each glass of alcohol consumed. Alcohol abuse is the most widespread drug addiction in all geographical regions and in all population groups. Alcohol also alters your thoughts, judgments, decision-making and behavior, and is associated with injuries and violence, including interpersonal violence such as intimate partner violence, sexual violence, youth violence, elder abuse, and violence against children. Alcohol consumption may intensify fear, anxiety or depression, especially when people are in isolation, and should not be used as a coping strategy to deal with stress.

Alcohol consumption, immune system and COVID-19:

The immune system is a complex set of organs, structures and molecules (such as hormonal factors, signal molecules and immune globulins), lymphatic vessels and white blood cells are its most important components. Through the immune system, the body provides a shield against disease and infection. The role of

the immune system is to protect the body from pathogens such as viruses, bacteria, parasites and toxins. Certain foods, sports, supplements and natural remedies are some of the ways are suggested to augment immunity. In recent years, conclusive evidence has been gathered that alcohol increases the risk of infectious diseases, especially HIV infection, tuberculosis, pneumonia with germs resistant to treatment and difficult to eradicate. The explanation consists, on the one hand, in the effect of alcohol to reduce immunity: the consumption of over 40 g of alcohol/day increases the rate of illness through infections in consumers versus non-consumers, under the conditions of the same exposure to infection. In addition, there are social factors associated with problematic alcohol consumption: low income or lack of income, reduced access to care, lack of medical support. Chronic ethanol abuse almost doubles the risk of developing acute respiratory distress syndrome. The association between bacterial and viral lung infections and ethanol dependence is supported by multiple patho-physiological mechanisms:

- Reducing the number of T lymphocytes – by preventing proliferation and by altering cell turnover;
- Favoring a pro-inflammatory status through an increased level of pro-inflammatory cytokines, such as tumor necrosis factor alfa (TNF α) and interleukins 1 and 6 (IL-1, IL-6).
- Decreases the function and number of NK (Natural Killers) cells responsible for removing infected or malignant cells;
- Disturbance of macrophage functions in the lung alveoli,
- Damage to the respiratory ciliated cells which plays an essential role in filtering pathogenic microorganisms.

Another important factor is malnutrition secondary to excessive alcohol intake. The harmful effect on the mucosa of the digestive tract consists in decreasing the absorption and metabolism of certain nutrients, including B vitamins (B1, B6 and B9 or folic acid), leading to a slowing of leukocyte proliferation and differentiation. The defense mechanisms of the mucosal immune system are also affected, resulting in a dysfunction of the function of IgA and IgG immune-globulins, which are responsible for local protection against infectious agents

Alcohol consumption, psychological imbalances and COVID- 19:

Alcohol is a substance with wide availability, accepted by most societies, with the potential for abuse and acute and chronic toxicity. It has a depressing effect on the central nervous system, causing a decrease in neural activity. It also has an anxiolytic, antidepressant, relaxing and sedative effect, being used by many people who face anxiety, depression or insomnia. General medical problems secondary to alcohol consumption, acute and chronic toxicity of ethanol can affect the entire body. The effects of alcohol on the brain are described below:

- Under the influence of alcohol, emotions can become exaggerated and the consumer is excessively happy, expansive or emotional.
- Alcohol has a depressing effect on the central nervous system, causing drowsiness, an effect dependent on the amount consumed; over time alcohol changes the architecture of sleep, decreasing periods of deep sleep and increasing the number of awakenings during the night.
- On a short-term, alcohol has an anxiolytic effect, but the period of relaxation and mental comfort is short
- Influences the pleasure centers (dopamine-mediated) and the reward system in the brain, which partly explains the installation of alcohol dependence.
- Acts on the production of opioid substances, which explains the analgesic effect.
- Affects the hippocampus, the area of the brain where memory related processes take place and so the consumer no longer remembers what he did during consumption and immediately afterwards.
- Inhibits the production of neurotransmitters, such as gamma-amino-butyric acid (GABA) and glutamate, the effect being to slow down the transmission of nerve impulses through the brain.
- Increased blood alcohol level over 0.05 % causes disorders of nerve activity in the frontal lobe and thus difficulties in impulse control and decision making, decreased thought and judgment, reduced censorship.
- The effect of alcohol on the cerebral amygdala causes consumers not to realize that certain actions of theirs can have dangerous effects and thus scandals, violence, accidents can occur.
- The action of alcohol on the cerebellum leads to loss of balance, coordination of movements and instability of gait.

- When the alcohol level exceeds 0.04 %, the functioning of the reflex centers in the brainstem that control breathing, coughing, sneezing can be inhibited and they become unable to regulate the vital functions of the body, in extreme cases, death can occur.

Theories and even ongoing information about the effects of the SARS-CoV-2 can often bring uncertainty. Psychologists who treat alcohol addiction have noticed that its consumption has increased. Events with repercussions on society and absolutely, on the human psycho-social side, such as the SARS epidemic of 2002, a pandemic on mental health, using online questionnaires. The results highlighted the following clinical psychiatric symptoms: generalized anxiety disorder; depressive symptoms; decreased sleep quality of the following clinical psychiatric symptoms: generalized anxiety disorder; depressive symptoms; decreased sleep quality or insomnia.

WHO recommendations on alcohol consumption during the COVID-19 pandemic:

Specialists from the World Health Organization have warned against the consumption of alcohol for therapeutic purposes. According to the false information circulated recently, the ingestion of alcohol would have helped to destroy the SARS-CoV-2 virus. There is no medical basis to support this fact, on the contrary, alcohol abuse weakens the body's protection against viral respiratory infections.

WHO's published advice on maintaining a balanced psychological state addresses the following issues:

- Avoid alcohol consumption as much as possible
- In the case of uncontrolled alcohol consumption, you can call on the help of a specialist
- Avoiding the association between alcohol consumption and smoking, because the two habits are mutually supportive.
- Avoiding alcohol to manage stress or anxiety.
- Social isolation and ethanol abuse are often associated with an increased suicide rate.
- Alcohol consumption and administration of certain drugs are contra-indicated during the COVID-19 pandemic.

Alcohol consumption during the COVID-19 pandemic (what to do, and what not to do):

- Avoid alcohol altogether, so that you do not weaken your own immune system and health and do not risk the health of others.
- If you do not drink, do not let any supposed health reason or claim convince you to start.
- If you drink, keep your drinking to a minimum and avoid getting intoxicated.
- Do not use alcohol as a way of dealing with your emotions and stress. Isolation and drinking may also increase the risk of suicide. Please call a health hotline if you have suicidal thoughts.
- Reach out for help online if you think your drinking or the drinking of someone close to you is out of control.
- Avoid alcohol as a social signal for smoking, and vice versa, as smoking is associated with more complicated and dangerous progression of COVID-19.
- Never mix alcohol with medications, even herbal or over-the-counter remedies, as this could make them less effective, or it might increase their effectiveness to a level where they become toxic and dangerous.
- Do not consume alcohol if you take any medication acting on the central nervous system (e.g. pain killers, sleeping tablets, anti-depressants, etc.), as alcohol might obstruct with your liver function and cause liver failure or other serious problems.
- Avoid stockpiling alcohol at home, as this will potentially increase your alcohol consumption and the consumption of others in your household.
- Make sure that children and young people do not have access to alcohol and do not let them see you consume alcohol–be a role model.
- Discuss with children and young people the problems associated with drinking and COVID-19, such as violations of quarantine and physical distancing, which can make the pandemic worse.
- Monitor the screen time of your children, as TV and other media are flooded with alcohol advertising and misinformation that may stimulate early initiation and increased consumption.

CONCLUSIONS

In the context of the COVID-19 pandemic caused by the new corona virus, alcohol consumption is a way to relax for many people, but it is important to know that alcohol can increase the susceptibility of the individual, both physically and mentally. Alcohol is a psychoactive substance that is associated with certain mental disorders. Therefore, people who suffer from a mental illness or are predisposed to certain disorders, such as depression or anxiety, are particularly vulnerable, especially in the context of social distancing. Alcohol consumption can affect the immune system and contribute to obesity, but also intensify risky behavior, such as violent reactions, depression or anxiety. All of these increase the risk to acquire COVID-19. In the context of high global alcohol consumption, with a significant number of casualties, it is important that people who are accustomed to drinking alcohol review their attitude towards this issue during the COVID-19 pandemic. The current pandemic circumstances of COVID-19 may influence the amount of alcohol consumed and how the individual relates to this consumption but also may induce medium- and long-term alterations in health behavior and health status for other persons, through rising acceptability of alcohol consumption in families, influencing the young members, higher consumption in pregnant women, increasing the risk of FADS. For mitigating the potential long-term consequences of increasing or pattern changing alcohol consumption, beyond statistics, a more in depth analysis of the root causes, of interconnections with mental health, socio-economic circumstances and social support, a close monitoring of the phenomenon and tailored public policies, containing appropriate measures aimed to address especially the groups with the high risk of harmful alcohol consumption would be highly recommended.

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