Non-Communicable Diseases Watch

May 2020

衞生防護中心 Centre for Health Protection

衞生署 Department of Health

Alcohol : Bad for Blood Pressure

Key Messages

※ Alcohol consumption is a causal factor in more than 200 diseases and injury conditions, including high blood pressure (hypertension).

※ A meta-analysis of 18 cohort studies on the relationship between different levels of alcohol consumption and risk of incident hypertension reported that men consuming 1–2 drinks (12 grams of pure ethanol per drink), 3–4 drinks and 5 or more drinks per day had 19%, 51% and 74% increased risk of hypertension compared with male non-drinkers respectively. In women, alcohol consumption beyond 2 drinks per day was associated with 42% increased risk of incident hypertension.

※ For prevention and control of hypertension, it is the best that people cease alcohol consumption. Drinkers are urged to take a look at their own drinking habits, recognise the harms associated with alcohol consumption and appraise the benefits of cutting down or even stopping drinking alcohol. As it is evident that alcohol produces more harm than any potential benefits, non-drinkers are advised not to start drinking. Pregnant women, children and youth and people who are ill or on medicine, as well as those operating machinery and driving, should not drink.

※ The Department of Health (DH) will step up efforts in building up public awareness about harmful effects of drinking. For more information about 'Alcohol and Health', please visit the Change for Health Website of DH at www.change4health.gov.hk.

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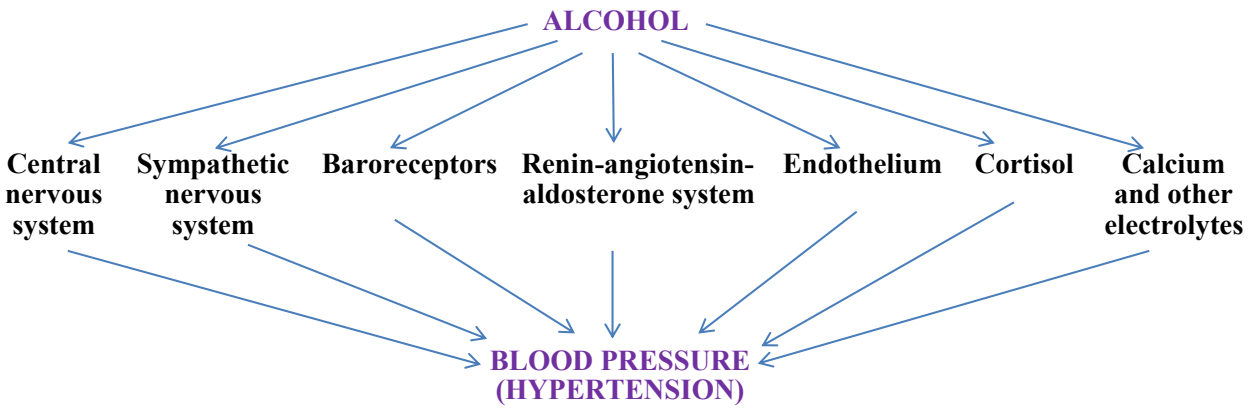
Alcohol : Bad for Blood Pressure

Alcohol consumption is a causal factor in more than 200 diseases and injury conditions,[1] including high blood pressure (or hypertension, i.e. systolic blood pressure ≥140 mmHg and/or diastolic blood pressure ≥90 mmHg according to the World Health Organization criteria[2]) and hypertensive heart disease (a potential outcome from hypertension). The Global Burden of Disease Study reported that alcohol consumption led to 2.8 million deaths in 2016,[3] including 131900 deaths with over 2.5 million disability-adjusted life years (i.e. the number of years lost due to ill-health, disability or early death) from alcohol-attributed hypertensive heart disease.[4]

Possible Mechanisms Underlying Alcohol's Effects on Blood Pressure

Blood pressure is the pressure exerted by circulating blood upon the walls of blood vessels. While many influences contribute to an increase in blood pressure, the cause and effect relationship between excessive alcohol consumption and hypertension was first reported in the early 1900s.[5] Since then, many studies worked to explore the complex effects of alcohol on blood pressure and proposed a number of possible mechanisms through which alcohol raises blood pressure (Figure 1), including disruption of the central nervous system, stimulation of the sympathetic nervous system, diminished baro-receptor sensitivity, dysregulation of the renin-angiotensin-aldosterone system, inflammation and oxidative stress of the endothelium, increase in plasma cortisol levels, and alteration of intracellular calcium concentrations or other electrolytes in vascular smooth muscle. Such neural, hormonal and physiological actions of alcohol cause constriction of blood vessels, elevated heart rate, increased cardiac output or augmented extracellular fluid volume. As a result, peripheral resistance and blood volume upsurges lead to elevated blood pressure and increase the risk of hypertension.[5-7] Besides, each gram of alcohol contains 7 kilocalories, almost as many as a gram of fat. Excessive alcohol consumption can lead to weight gain, and being overweight or obese is one of the risk factors of hypertension.

Figure 1: Possible mechanisms of alcohol-induced hypertension



(Modified from Husain et al 2014)

Alcohol Consumption and Risk of Hypertension

In men, epidemiological studies show that any alcohol consumption is associated with an increased risk of hypertension and the relationship is linear (i.e. the more a man drinks alcohol, the higher his risk of hypertension). In women, studies show that alcohol consumption with more than 20 grams per day significantly increased hypertension risk.[8] A meta-analysis of 18 cohort studies on the relationship between different levels of alcohol consumption and risk of incident hypertension reported that men consuming 1–2 drinks (12 grams of pure ethanol per drink), 3–4 drinks and 5 or more drinks per day had 19%, 51% and 74% increased risk of hypertension compared with male non-drinkers respectively. In women, alcohol consumption beyond 2 drinks per day was associated with 42% increased risk of incident hypertension.[9] Another study of about 500000 men and women in China also showed that alcohol consumption uniformly increased blood pressure and stroke risk, and there was no protective effect of low level of alcohol consumption against stroke.[10]

Of note, low level of alcohol consumption is associated with other adverse health consequences too. As far as cancer risk is concerned, there is no safe level for alcohol consumption, and the carcinogenic effect is independent of the type of alcoholic beverages (i.e. the carcinogenic effect is the same for beer, wine or spirits).[11] Being classified as a Group 1 carcinogen to humans (belonging to the same group as tobacco smoke, asbestos and ionizing radiation), there is sufficient scientific evidence that alcohol consumption causes cancers of the mouth, pharynx, larynx, oesophagus, liver, colorectum, and female breasts.[12] Even consuming small amount of alcohol during pregnancy can harm the developing baby's brain and cause alcohol-related birth defects.[13]

For prevention and control of hypertension, it is the best that people cease alcohol consumption. Investigations observed a dose-response relationship between alcohol reduction and blood pressure reduction. Among people who drank three drinks per day, a reduction in alcohol consumption to near abstinence was associated with mean reductions in systolic blood pressure of 1.18 mmHg and diastolic blood pressure of 1.09 mmHg. For people who drank more than six drinks per day, cutting alcohol consumption by about 50% was associated with a mean of 5.50 mmHg reduction in systolic blood pressure and 3.97 mmHg reduction in diastolic blood pressure.[14]

Drinkers are urged to take a look at their own drinking habits, recognise the harms associated with alcohol consumption and appraise the benefits of cutting down or even stopping drinking alcohol. Members of the public can answer the locally validated Alcohol and Health Questionnaire (AUDIT[#]). Such simple, self-administered electronic questionnaire can assess individual's alcohol use and potential health effects within minutes.

Cutting Down or Stopping Alcohol Consumption

Box 1 includes some tactics that can help drinkers cutting down or stopping drinking. Drinker can also talk with family doctor for a customised "change plan" or appropriate medications to relieve withdrawal symptoms if shown. As it is evident that alcohol produces more harm than any potential benefits, non-drinkers are advised not to start drinking. Pregnant women, children and youth and people who are ill or on medicine, as well as those operating machinery and driving, should not drink.

For more information about "Alcohol and Health", please visit the Change for Health Website of DH at www.change4health.gov.hk.

Box 1: Some tactics that can help drinkers cutting down or stopping drinking[15, 6]

Set a limit. Work out a personal limit per day, per week or per occasion and stick to it. Adjust the limit to a lower level gradually.

Know the alcohol content (% vol or alcohol by volume, ABV) of drinks. It can help choosing drinks with lower alcohol content and watching the amount of drinking.

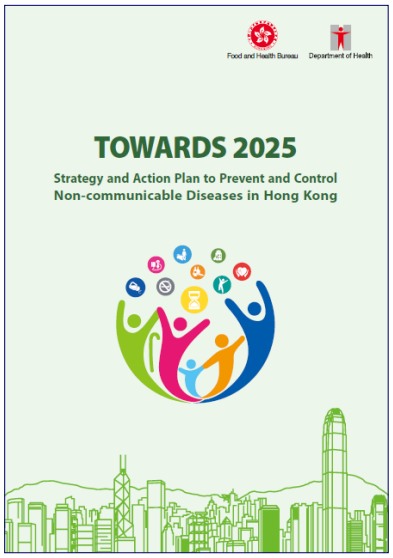
Be smart how you drink. Do not drink with an empty stomach. Eat before or while you drink, so that the alcohol will be absorbed into your system more slowly. Pace yourself and sip slowly. Avoid rounds, top-ups or re-fills. Alternate alcoholic and non-alcoholic drinks, such as sparkling water or tonic water and lime.

Plan to handle urges. Develop enjoyable hobbies or use healthy activities to distract you from drinking, such as taking a walk or physical exercise. Avoid going to pubs and places where people drink. Use prompts to remind yourself the reasons for cutting down or not drinking, such as setting up automated mobile phone messages or putting up 'No Drinking' signs at home.

Know your "NO". Build drink refusal skills, such as practise saying '"No, thank you. I am cutting down/ not drinking now".

Enlist support. Tell family, friends and colleagues you are cutting down or stopping drinking, and ask them not to offer you alcohol.

From public health perspective, a reduction of both alcohol consumption and hypertension could have substantial synergistic health gains in terms of morbidity, mortality and healthcare costs. In 2018, the Hong Kong Government launched "Towards 2025: Strategy and Action Plan to Prevent and Control Non-communicable Diseases in Hong Kong" (SAP) with 9 local non-communicable disease targets to be achieved by 2025, including Target 2 to reduce harmful use of alcohol and Target 6 to contain the prevalence of raised blood pressure. DH will step up efforts in building up public awareness about harmful effects of drinking.[17] For more information about the SAP, please visit the Change for Health website at www.change4health.gov.hk/en/saptowards2025/.



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World Hypertension Day

17 May 2020

Every year, 17 May is dedicated to World Hypertension Day (WHD). Such initiative aims to promote public awareness of hypertension, encourage citizens of all countries to check their blood pressure and take actions to prevent and control this silent killer.

The theme for this year WHD is *Know Your Numbers*. For more information about the WHD, please visit https://ish-world.com/public/world-hypertension-day.htm.

Having regular blood pressure checks allow early detection of hypertension. Healthy adults aged 18 or above in general should have their blood pressure checked at least once every two years. However, more frequent intervals may be required according to the blood pressure level, individuals' age, overall cardiovascular risk profile, and doctor advice.

Non-Communicable Diseases (NCD) WATCH *is dedicated to promote public's awareness of and disseminate health information about non-communicable diseases and related issues, and the importance of their prevention and control. It is also an indication of our commitments in responsive risk communication and to address the growing non-communicable disease threats to the health of our community. The Editorial Board welcomes your views and comments. Please send all comments and/or questions to so_dp3@dh.gov.hk.*