Commentary: Alcohol poisoning in Russia: implications for monitoring and comparative risk factor assessment

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Zaridze and colleagues[1] demonstrated in their large autopsy study that, in recent years, alcohol has been a main underlying determinant of mortality in Russia. They also shed light on the role of drinking patterns, as a substantial part of death certificates with unspecified cardiovascular causes of death (i.e. disease categories labelled 'other' or 'not classified') had lethal, or potentially lethal, concentrations of ethanol in blood. These unspecified cardiovascular causes of death, together with external causes of death also markedly impacted by alcohol, were identified as the main impact factors on mortality fluctuations in the time period between 1991 and 2006.

Alcohol has been identified as a main contributor to all-cause mortality in Russia,[2] and has also been shown to be associated with an overall detrimental impact on cardiovascular mortality.[3] Patterns of irregular heavy consumption have been discussed as the main underlying reason for the positive association between alcohol consumption and cardiovascular events in Russia; however, this impact has mainly been discussed as a chronic consequence of physiological mechanisms, rather than as a misclassification of, or an acute consequence of, alcohol poisoning.[4,5] The analysis of Zaridze and colleagues thus adds considerably to the understanding of the causes of death in Russia and has several important implications for the measurement of the exposure of alcohol in epidemiological study, comparative risk analysis and monitoring of alcohol-attributable deaths and burden of disease.

Implications for measurement in alcohol epidemiology

Typically, despite various pleas, alcohol exposure in medical epidemiology is still measured by multiplying the usual frequency of drinking occasions with the usual quantity per drinking occasion. While using this procedure with more regular drinking populations gives an approximate measure of average volume of alcohol consumed, and is relevant for some chronic disease outcomes such as cancer or liver cirrhosis,[6] other measures such as the frequency of heavy drinking occasions are more relevant for other chronic disease outcomes, such as ischaemic heart disease, or injury, as well as for populations with irregular drinking patterns. Heavy drinking occasions are usually defined as drinking more than four (women) or five (men) drinks on a single occasion,[7] based on the US studies with college students. However, these measures may not be good indicators for studying alcohol poisoning or consumption patterns in heavy-binge drinking populations such as some Russian populations. For these, other thresholds for heavy drinking occasions are necessary, as is the use of different assessment approaches, such as asking the maximum quantity of alcohol consumed over a time period as a main indicator or using the graduated-frequency method.[8] We need reliable self-report measures for irregular and very heavy drinking occasions, as such occasions seem to be linked to considerable harm.[1]

Implications for comparative risk assessment

The comparative risk assessments within the Global Burden of Disease (GBD) studies have received much attention and have been used considerably in health priority setting.[9,10] One of the main underlying techniques of GBD is making statistics comparable across countries by redistributing unspecified cause of death categories.[11] This is done under the assumption that a high proportion of 'other' or 'unspecified' codes

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in a certain group of diseases are placeholders for more specific codes of their same large categories (e.g. unspecified cardiovascular disease codes masking ischaemic heart disease or stroke). However, if the findings of Zaridze et al.[1] are correct and generalizable for Russia or for larger regions such as the former Soviet Union, the application of this technique will result in some incorrect conclusions. Thus, if 'other' or 'unspecified' cardiovascular codes mask acute consequences, such as alcohol poisoning, a redistribution of these codes into categories such as ischaemic heart disease and stroke categories would not only artificially inflate these death rates for these categories, but also lead to a severe underestimation of the impact of alcohol as a risk factor.

Monitoring

The results of Zaridze et al.[1] give valuable indications for the monitoring of alcohol-attributable deaths and burden of disease. More and more insights into the vast burden of disease attributable to alcohol have led the World Health Assembly to two recent resolutions, in 2005 and 2008 (http://www.who.int/nmh/WHA58.26en.pdf; http://www.who.int/nmh/WHA%2061.4.pdf), calling for monitoring of alcohol-attributable harm, as well as for strategies to reduce the harmful use of alcohol. Alcohol poisoning has been proposed as a potential main indicator of alcohol-attributable harm for regions where this cause of death, or disease category, can be assessed reliably.[12] In discussions at the World Health Organization, it was speculated that Russia and other countries of the former Soviet Union could be regions where monitoring would be based on alcohol-poisoning death or hospitalization rates. However, as Zaridze et al.[1] show, there is a large degree of misclassification, and many deaths which should be attributable to alcohol poisoning, are actually coded as other external deaths or cardiovascular deaths. Given the stigma associated with heavy drinking and alcohol use disorders, as well as insurance policy implications, alcohol-poisoning deaths may also be underreported in many other regions of the world.[13]

Conclusion

Zaridze et al.[1] presented an important epidemiological study with important implications for the measurement of alcohol exposure, for comparative risk assessment, and for monitoring of alcohol-attributable harm. It should serve as an important reminder that we have to systematically improve the measurement of exposure and design of alcohol epidemiological studies.

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