The global burden of viral hepatitis: better estimates to guide hepatitis elimination efforts

A recurring question about viral hepatitis is why it receives so little funding and attention from global health policy makers and donors. For example, the Sustainable Development Goals have a goal to “end the epidemics of” HIV, tuberculosis, and malaria by 2030 while only “combating” hepatitis, despite the fact that hepatitis accounts for more deaths than each of those infections individually. One reason for this is the difficulty in accurately quantifying and explaining the morbidity and mortality related to viral hepatitis. This difficulty stems from the fact that hepatitis deaths are caused by five distinct viruses (hepatitis A–E) with different routes of transmission, that death occurs decades after infection, and that when people die with hepatitis-related liver cancer and cirrhosis, these deaths are not always linked to the underlying infection.

In *The Lancet*, Jeffrey Stanaway and colleagues have made a major advance in addressing these challenges. Using the Global Burden of Disease (GBD) Study approach, which estimates the causes of mortality and morbidity and their relative importance, they have assessed the burden of disease caused by viral hepatitis from 1990 to 2013 at the country, regional, and global levels. The main conclusion from their analysis is that viral hepatitis accounted for 1.45 million deaths (95% uncertainty interval [UI] 1.38–1.54) in 2013, a 63% (95% UI 52–75) increase compared with the 0.89 million deaths (0.86–0.94) in 1990. Morbidity also increased in terms of years lived with disability (from 0.65 million [0.45–0.89] to 0.87 million [0.61–1.18]) and disability-adjusted life-years (DALYs; from 31.7 million [30.2–33.3] to 42.5 million [39.9–45.6]). The biggest increase was noted for hepatitis C infection, for which the rate of DALYs increased by 43%. Most of the morbidity and mortality is caused by hepatitis B and C infections (96% [95% UI 94–97] of mortality and 91% [88–93] of DALYs in 2013), because these two viruses cause chronic, lifelong infections, resulting in progressive liver damage that leads to cirrhosis and hepatocellular carcinoma. Finally, the burden of disease was not equally distributed worldwide. Hepatitis-related mortality was highest (≥33-50 deaths per 100 000 population per year) in Oceania, western sub-Saharan Africa, and central Asia.

However, in absolute numbers, east Asia and south Asia have the greatest number of hepatitis deaths (52% of the total number of deaths). Unlike HIV, which primarily occurs in low-income countries (mostly in Africa), 58% of hepatitis deaths occurred in upper-middle-income countries and high-income countries.

This work is an extension of an earlier global analysis of the GBD Study that for the first time combined deaths due to acute and chronic infection to provide an improved estimation of the true burden of viral hepatitis. Both Stanaway and colleagues’ study and the earlier analysis used complex statistical methods that rely on several assumptions and on estimations of the incidence and prevalence of hepatitis infection, as well as the number of deaths recorded by death certification. Unfortunately, these measures are particularly weak for hepatitis, with widely varying estimates for the number of people living with hepatitis infection and documented under-reporting of deaths due to hepatitis-related cirrhosis and liver cancer.

Stanaway and colleagues’ study has several important implications. It provides convincing evidence that viral hepatitis is a major contributor to the global disease burden and shows that this disease requires a stronger national and international response. Such an effective response needs to combine interventions that prevent new infections (eg, immunisation, safe health care,
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and harm reduction) and scaling up of testing and treatment to reduce mortality among the estimated 400 million people with chronic hepatitis B and C infection. Addressing the global burden of hepatitis infection will require substantial additional resources. Since most of the hepatitis burden is in high-income countries and upper-middle-income countries that do not receive development assistance, in many countries, these resources will probably need to come from national health budgets. For low-income countries and lower-middle-income countries, it is hoped that the improved understanding of the high burden of hepatitis will lead to an increase in international development assistance.

There are indications that the momentum is building to better address viral hepatitis. Several countries—such as Egypt, Georgia, and Mongolia—have adopted elimination goals, and in May, 2016, WHO adopted the first-ever global hepatitis strategy with a goal to eliminate viral hepatitis as a public health threat by 2030, defined as a reduction in incidence by 90% and mortality by 65%. Global estimates documenting the high level of hepatitis-related mortality were key in advocating for the global strategy and are now further supported by Stanaway and colleagues’ findings. Improved national estimates are now needed to monitor the success of this strategy.

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