Economic Burden of Hepatitis in South Korea

Dear Editor: It is important to understand the relative economic burden of different diseases in order to make the best public health policy decisions. Therefore, we read with interest the recent paper by Shon et al. (1) who estimated the economic burden of hepatitis A, B, and C in South Korea. In their study, the population prevalence and mortality rates were estimated for each of these diseases over a 4-years study period, that is, 2008–2011. The mortality rates estimated in this study, expressed as the rate per 100,000 of the population, were over 10 times higher for hepatitis C virus (HCV) infection than for hepatitis B virus (HBV) infection. For example, mortality rate for HCV infection was 0.58 compared with 0.03 for HBV infection in 2011. The prevalence of chronic HBV infection is considerably higher than that of HCV infection in South Korea. Furthermore, HBV was found to be associated with a majority of cirrhosis and hepatocellular carcinoma (HCC) cases in a large, single-center Korean cohort-based study (2), and the population-attributable fraction of HCC for HBV was estimated to be 68.1% (3). In contrast, Shon et al. reported higher mortality rates for HCV infection. Since the findings were unexpected, we reviewed the figures presented in the paper. We assumed that the absolute number of deaths (obtained from the Korean Statistical Information Service) were correct. Additionally, we assumed that the total number of cases of each disease (obtained from the Korean National Health Insurance Service) were correct. We obtained the total population number by back-calculation from the number of cases and population prevalence figures. Subsequently, we recalculated hepatitis B-related mortality rates (per 100,000) for each year and obtained the following numbers: 1.79 for 2008, 1.68 for 2009, 1.80 for 2010, and 1.73 for 2011. In contrast to the results published in the paper by Shon et al., we estimate that the mortality rates due to hepatitis B in South Korea were 3 to 5 times higher than those for hepatitis C.

We could not determine whether this correction of the mortality rate calculation for hepatitis B would have a significant impact on the indirect costs and calculated economic burden. However, if the authors agree with our revised mortality rate calculations, we suggest that they should confirm whether there is any impact on the estimations of the economic burden.

Additionally, our review of other figures revealed a discrepancy in the per capita total costs for hepatitis A in 2011. Our recalculation revealed a cost of 1.94, instead of 1.17 (thousands of US dollars), which is slightly higher than values reported for hepatitis B and C, and this brings it in line with the values determined for the prior 3 years for hepatitis A. Based on the original calculation showing hepatitis C accounted for the highest total per capita costs in 2011, the authors speculated that the relatively high cost of hepatitis C might be because of the higher cost of medicines used to treat that disease. However, if hepatitis A has the highest per capita cost, there might be other more important factors influencing the relative cost of the 3 diseases for each patient, which could be further investigated.

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In Reply: The critical comments of Watson et al. were very helpful. Accordingly, we again reviewed our manuscript. We found that the summing process of the values of each age group had errors, and some part of the paper required correction. In other words, the mortality rates for hepatitis B infection were 1.68, 1.59, 1.70, and 1.64 in 2008, 2009, 2010, and 2011, respectively. Additionally, the per capita cost due to hepatitis A infection in 2011 was found to be 1.93, rather than 1.17 thousand US dollars. Therefore, the mortality rates for hepatitis B infection was higher than those for hepatitis A and C infection during 2008–2011. However, the trend for mortality, including the increasing trend for hepatitis C infection-related mortality and steady trend for hepatitis B infection, did not change. In addition, the per capita cost for hepatitis A infection was higher than that for hepatitis B and C infection in 2011. In 2011, hepatitis A infection had the highest per capita cost, followed by hepatitis C and B infections. However, in 2010, hepatitis C infection had the highest per capita cost, followed by hepatitis A and B infections; hence, the per capita cost did not show a constant trend. Hepatitis A infection can result in severe diseases such as fulminant hepatic failure, especially in adults (1); this may explain the high per capita cost for hepatitis A infection. Table 3 also had an error in the exchange rate for the Korean won to US dollar, and this has been

Accepted April 4, 2016.
DOI: 10.7883/yoken.JJID.2016.093
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Conflict of interest HW, PM, and JE are employees of Sanofi R&D which is researching new treatments for viral hepatitis.
corrected. The recalculated values are presented in Tables 1–3.

However, the loss in productivity due to premature death was based on the number of mortality cases by 5-year age groups instead of the per capita mortality, and the total economic burden of hepatitis A, B, and C infections did not change. Therefore, our major findings, including a decreasing trend of hepatitis A infection, and increasing trends of hepatitis B and C infections, is identical for economic burden, thus, the importance of prevention and management of hepatitis B and C infections should be highlighted. Moreover, we sincerely appreciate the valuable points brought up by Watson et al.

Conflict of interest None to declare.

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Accepted May 9, 2016.

DOI: 10.7883/yoken.JJID.2016.195

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