Reviewer’s report

Title: Prevalence and risk factors of Helicobacter pylori infection in Korea; Nationwide multicenter study over 13 years

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Reviewer: Leonardo Henry H Eusebi

Reviewer’s report:

I read the study by Kim and co-workers with interest. This is a multi-centre nationwide study reporting the seroprevalence of H.pylori infection in several areas of South Korea in 2011, also reporting factors associated with seropositivity.

Major findings are that the seroprevalence of H.pylori infection has progressively reduced since 1998 and 2005, and that among several known factors associated with seropositivity such as male gender, economic status and education level, also high cholesterol levels was highlighted as an associated factor.

The study has a similar design as 2 previous Korean nationwide surveys conducted to investigate the seroprevalence of infection in 1998 and 2005. This has allowed also to compare the results of the actual study with the 2 previous ones.

However, several important topics need to be clarified:

Major Compulsory Revisions

1. It is stated in the “comparison of trends of seroprevalence” section that the trends were compared using the published data of 1998 and 2005. Thus, it should be cleared how the authors manage to divide the study population into 8 birth cohort intervals with relative seroprevalence values for 1998, 2005 and 2011 when such values are not reported in the studies of 1998 and 2005.

2. In table 3 reporting the risk factors, the total number of included subjects is 10796. However, the total of subjects divided by household income is 9449, by education is 10188, by BMI 10657, etc. The authors should explain how come there is lacking data about patients when considering each risk factor. Patients with incomplete data should be excluded for the analysis.

3. The decrease of prevalence divided by age (intervals of 10 years), as shown in figure 2C, was statistically significant from 1998 to 2005 (and thus also between 1998 and 2011), but was not significant between 2005 and 2011. This important result should be stressed in the discussion, since although there is a reduction in the last 6 years, this is not statistically significant.

4. According to figure 2A there is a statistically significant reduction only between data from 1998 and 2011. It is not clear whether there is also a statistically significant reduction between 2005 and 2011. This point should be clarified.
5. The English spelling and grammar should be reviewed by a native English-speaker.

Minor Essential Revisions

6. As reported in the methods section, patients underwent only questionnaire testing and seroprevalence of infection. However during the study the authors report also blood test values (Cholesterol, glucose, triglyceride) and anthropometric values (weight, BMI). These evaluations (physical examination, blood testing, etc.) should be mentioned in the methods section.

7. Was the questionnaire used the same as for the previous studies?

8. In the “Analysis of cohort effects” section the Authors state that “the data from 1998 was considered to be those in 1999 because the successive cross-sectional data should span with same interval”. Doesn’t reducing the time interval from 7 to 6 years modify the statistical validity and result? The Authors should comment such statistical adjustment.

9. Figure 3 line H has a wrong symbol.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Not suitable for publication unless extensively edited

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests