Reply

Dear Editor,

We thank Joob and Wiwanitkit[1] for their interest in our recent work[2] and their insightful comments. We are grateful for the opportunity to respond. Liang et al[3] conducted a nation-wide population-based study and showed that the incidence of peptic ulcer disease in the general population was between 1.1 per 1000 persons and 2.0 per 1000 persons per year. The incidence in patients with chronic kidney disease increased from 13.2 per 1000 persons to 19.8 per 1000 persons per year over that time, and the incidence was 10−12 times higher than that in patients without chronic kidney disease over a 10-year period. End-stage renal disease patients exhibit a higher incidence of peptic ulcer disease than patients without renal disease.[4] However, our aims differed from those of Liang et al.[3] Factors such as reductions in mucosa prostaglandin,[4] hypergastrinemia,[5] drugs such as nonsteroidal anti-inflammatory drugs,[6] and systemic/local circulatory failure[7] influence the onset of peptic ulcer disease in end-stage renal disease patients. Establishing the reliability of diagnostic methods for *Helicobacter pylori (H. pylori)* is important for managing infection. The approach of combining all techniques has been used in previous studies evaluating the diagnostic method for *H. pylori* infection.[8−10] However, we used the data obtained from the Taiwan National Health Insurance Research database; this "gold standard" of combining all techniques was not reimbursed by the Taiwan National Health Insurance. We agree on the limitations of false-negative and false-positive rates in our current study. A study by Calvet et al[11] showed that higher sensitivity and specificity can be obtained by using rapid urease test and histological examination. The false-negative and false-positive rates are, respectively, about 5.31% (6/113) and 0% (0/86) using a rapid urease test, and 6.19% (7/113) and 1.16% (1/86) with a histological examination, according to the study of Calvet et al.[11] In addition, Neithercut et al[12] used the urea:ammonium ratio to prove the presence of *H. pylori* infection in patients with chronic renal failure, and one case (1/23) of false positive result can still be seen in the study. The focus of our future research will likely be to evaluate the effect of *H. pylori* eradication on the recurrence of complicated peptic ulcer disease in early end-stage renal disease patients.

References

1. Joob B, Wiwanitkit V. *Helicobacter pylori* infection, chronic kidney disease, and peptic ulcer disease. *J Chin Med Assoc* 2014;**77**:656.
2. Chang SS, Hu HY. Lower *Helicobacter pylori* infection rate in chronic kidney disease and ESRD patients with peptic ulcer disease. *J Chin Med Assoc* 2014;**77**:354−9.
3. Liang CC, Muo CH, Wang IK, Chang CT, Chou CY, Liu JH, et al. Peptic ulcer disease risk in chronic kidney disease: ten-year incidence, ulcer location, and ulcerogenic effect of medications. *PLoS One* 2014;**9**:e87952.
4. Tseng GY, Lin HJ, Fang CT, Yang HB, Tseng GC, Wang PC, et al. Recurrence of peptic ulcer in uraemic and non-uraemic patients after *Helicobacter pylori* eradication: a 2-year study. *Aliment Pharmacol Ther* 2007;**26**:925−33.
5. Gur G, Boyacioglu S, Gul C, Turan M, Gursoy M, Baysal C, et al. Impact of *Helicobacter pylori* infection on serum gastrin in haemodialysis patients. *Nephrol Dial Transplant* 1999;**14**:2688−91.
6. Tseng GY, Lin HJ. Aspirin prescription and outcomes in hemodialysis patients. *Am J Kidney Dis* 2008;**51**:1070−1.
7. Sugimoto M, Sakai K, Kita M, Imanishi J, Yamaoka Y. Prevalence of *Helicobacter pylori* infection in long-term hemodialysis patients. *Kidney Int* 2009;**75**:96−103.
8. Lopez T, Quesada M, Almirall J, Sanfeliu I, Segura F, Calvet X. Usefulness of non-invasive tests for diagnosing *Helicobacter pylori* infection in patients undergoing dialysis for chronic renal failure. *Helicobacter* 2004;**9**:674−80.
9. Calvet X, Quesada M, Rosello M, Salceda F, Sanfeliu I, Dalmau B, et al. Stool antigen for the diagnosis of *Helicobacter pylori* infection in cirrhosis: comparative usefulness of three different methods. *Aliment Pharmacol Ther* 2003;**17**:727−31.
10. Thijs JC, van Zwet AA, Thijs WJ, Oey HB, Karrenbeld A, Stellaard F, et al. Diagnostic tests for *Helicobacter pylori*: a prospective evaluation of their accuracy, without selecting a single test as the gold standard. *Am J Gastroenterol* 1996;**91**:2125−9.
11. Calvet X, Sanchez-Delgado J, Montserrat A, Lario S, Ramirez-Lazaro MJ, Quesada M, et al. Accuracy of diagnostic tests for *Helicobacter pylori*: a reappraisal. *Clin Infect Dis* 2009;**48**:1385−91.
12. Neithercut WD, Rowe PA, el Nujumi AM, Dahill S, McColl KE. Effect of *Helicobacter pylori* infection on intragastric urea and ammonium concentrations in patients with chronic renal failure. *J Clin Pathol* 1993;**46**:544−7.

Shen-Shong Chang
Division of Gastroenterology, Taipei City Hospital Yang-Ming Branch, Taipei, Taiwan, ROC
Department of Internal Medicine,
National Yang-Ming University School of Medicine,
Taipei, Taiwan, ROC

Hsiao-Yun Hu*
*Institute of Public Health and Department of Public Health,
National Yang-Ming University, Taipei, Taiwan, ROC*
*Department of Education and Research, Taipei City Hospital,
Taipei, Taiwan, ROC*

*Corresponding author. Dr. Hsiao-Yun Hu, Department of Education and Research, Taipei City Hospital, 145, Zhengzhou Road, Taipei 103, Taiwan, ROC.
E-mail address: hyhu@ym.edu.tw (H.-Y. Hu)