

LETTER TO THE EDITOR

## Oral Vitamin B12 Therapy after Total Gastrectomy

### REPLY:

We appreciate the comments of Andrès et al. on our recent publication in *Annals of Surgical Oncology*.<sup>1</sup> It is true that patients who are undergoing anticoagulation therapy will gain additional benefit from the oral administration of vitamin B12. The prevalence of atrial fibrillation from the community aged 65 years or older is reported as 4.7%, and more than half of them are eligible for anticoagulation therapy.<sup>2</sup> Because gastric cancer is a disease of relatively elderly people and the prognosis of early gastric cancer is favorable, a substantial proportion of elderly gastric cancer patients may have more comorbidities necessitating anticoagulation therapy after total gastrectomy. Therefore, replacement by the oral route would be a better alternative than the intramuscular route for these patients.

We emphasize that our study population comprised a homogenous group of patients who were completely deficient of intrinsic factor after undergoing total gastrectomy.<sup>1</sup> None of the patients experienced vitamin B12 deficiency before the total gastrectomy. On the other hand, the other studies addressed vitamin B12 deficiency related to food-cobalamin malabsorption caused by the patient's inability to release cobalamin from food, not by a deficit of intrinsic factor.<sup>3</sup> In such cases, the severity of deficiency is mild and is observed in elderly people or patients with atrophic gastritis.<sup>4</sup> Because only a small amount of free cobalamin can cure vitamin B12 deficiency in such cases, a cure after oral replacement in this patient group is anticipated. The difference in our study is that we focused on patients with a complete deficit of intrinsic factor who were previously regarded as candidates for intramuscular vitamin B12 injection.

Despite the efficacy and safety of oral vitamin B12 replacement, daily oral replacement for life is a difficult protocol to follow up in every patient, especially in those patients who take no other medications besides vitamin

B12. The optimization and personalization of the treatment protocol is required in future studies because many factors can affect the absorption and consumption of vitamin B12. The oral vitamin B12 replacement protocol of the previously published randomized study was 1,000 µg cobalamin daily for 10 days, once a week for 4 weeks, and after that once a month for life.<sup>5</sup> None of the patients in that study underwent gastric or ileal resection, and less than half of the patients had anti-parietal cell antibody. A prospective study with a more sophisticated treatment protocol is required to establish the best treatment strategy of vitamin B12 deficiency after total gastrectomy.

**Hyung-Il Kim, MD<sup>1</sup>, and Woo Jin Hyung, MD, PhD<sup>1,2,3</sup>**

<sup>1</sup>Department of Surgery, Yonsei University College of Medicine, Seoul, Korea;

<sup>2</sup>Robot and MIS center, Severance Hospital, Yonsei University Health System, Seoul, Korea;

<sup>3</sup>Brain Korea 21 Project for Medical Science, Yonsei University College of Medicine, Seoul, Korea  
e-mail: wjhyung@yuhs.ac

Published Online: 30 June 2011

© Society of Surgical Oncology 2011

### REFERENCES

1. Kim HI, Hyung WJ, Song KJ, Choi SH, Kim CB, Noh SH. Oral vitamin B12 replacement: an effective treatment for vitamin B12 deficiency after total gastrectomy in gastric cancer patients. *Ann Surg Oncol*. 2011;10:1764–70.
2. Sudlow M, Thomson R, Thwaites B, Rodgers H, Kenny RA. Prevalence of atrial fibrillation and eligibility for anticoagulants in the community. *Lancet*. 1998;352:1167–71.
3. Andres E, Kaltenbach G, Noblet-Dick M, et al. Hematological response to short-term oral cyanocobalamin therapy for the treatment of cobalamin deficiencies in elderly patients. *J Nutr Health Aging*. 2006;10:3–6.
4. Carmel R. Malabsorption of food cobalamin. *Baillieres Clin Haematol*. 1995;8:639–55.
5. Bolaman Z, Kadikoylu G, Yukselen V, Yavasoglu I, Barutca S, Senturk T. Oral versus intramuscular cobalamin treatment in megaloblastic anemia: a single-center, prospective, randomized, open-label study. *Clin Ther*. 2003;25:3124–34.