Letter to the Editor

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Use of erythropoiesis-stimulating agents in obese hemodialysis patients

Sun-Hee Park

Department of Internal Medicine, School of Medicine, Kyungpook National University, Daegu, Korea

To the Editor:

I read with interest the article by El-Kannishy et al [1], in which fewer erythropoietin doses were required to achieve anemia control in obese hemodialysis (HD) patients in a multicenter observation study from Egypt. Given these results, I doubt if obesity, expressed as body mass index (BMI) > 30 kg/m^2, by itself is an independent factor for determining dosage of erythropoietin-stimulating agents (ESAs).

The idea of this study was based on the hypothesis that better anemia management could be a link between obesity and increased survival in HD patients. The authors found that the median hemoglobin level did not differ significantly between obese and non-obese patients. whereas the average dose of ESA (expressed in unit/week) was significantly lower in obese compared to non-obese HD patients. Putting aside the argument of BMI as an index for obesity in dialysis patients, a link between anemia or ESA responsiveness and the 'obesity paradox' is still uncertain.

El-Kannishy et al [1] compared ESA doses across BMI categories from underweight (< 18.5 kg/m^2) to third-degree obese groups (> 40 kg/m^2). A significant difference of ESA dose in different BMI subgroups was seen between underweight, normal weight, and overweight groups. Obesity, defined as a BMI > 30 kg/m^2, did not further decrease the ESA dose. In addition, the ESA dose expressed in unit per kg of body weight per week was mathematically associated with body weight or BMI; therefore, it influences the result of correlation analysis between ESA dose and BMI. This strongly suggests that BMI without information of body composition is a limited index of obesity in this analysis. The effect of fat mass in response to ESA must thus be determined. Vega et al [2] previously reported similar results that BMI was inversely correlated with erythropoietin resistance index (ERI), concluding that fat mass favors erythropoietin response to ESA.

Interestingly, the present study [1] had relatively low ESA doses or ERIs in both non-obese and obese patients (median ESA dose of 6,000 vs. 4,000 U/week; median ERI of 8.0 vs. 4.3) compared to similar studies [3,4]. This seems to be related to the healthier characteristics of patients in this study (younger, less diabetic, and less hypertensive), although the authors showed no detailed information on the comorbidities.

In addition to BMI, there are many confounding factors influencing ESA dose or ERI in HD patients. Of note, malnutrition and inflammation complex syndrome might influence the association of BMI and ESA responsiveness [5]. The multiple linear regression analysis performed in the present study should have shown the relationships between ERI and other confounding factors including comorbidities, residual renal function, inflammation and nutritional status.

Finally, we are left with the question whether inflammation or nutritional status could be the major contributing factor for ESA dose-reduction in HD patients with a higher BMI. In addition, it is not clear which body com-

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Correspondence: Sun-Hee Park
Department of Internal Medicine, Kyungpook National University Hospital, 130 Dongdeok-ro, Jung-gu, Daegu 41944, Korea. E-mail: sh-park@knu.ac.kr
ORCID: https://orcid.org/0000-0002-0953-3343

position—fat mass of muscle mass—is a dominant contributor to the association between ESA dose and BMI in this study [1]. If we admit that obesity independently induces ESA dose-saving in HD patients, the effects of adipokines on anemia parameters or ESA are worthy of exploration in future studies.

Conflicts of interest

The author has no conflicts of interest to declare.

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