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The Ratio of Fibrinogen to Albumin as a Predictor of Contrast-Induced Nephropathy After Carotid Angiography: Reply

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We would like to thank Cetin et al for their interest in our article.[1] As stated in their letter,[2] we found that the fibrinogen to albumin ratio was associated with contrast-induced nephropathy (CIN) after carotid angiography.[1]

Low serum albumin level has been shown to be related to cardiovascular morbidity and mortality.[3,4] The mechanism of the association of low albumin and CIN is not clear. Some possible mechanisms are oxidative stress and increased inflammatory status.[5,6] Also, its reduced level may lead to the increased blood viscosity which is associated with endothelial dysfunction that may contribute to the development of CIN.[7]

Increased fibrinogen levels are associated with mortality in acute coronary syndrome.[8] Celik et al[9] showed that there was a relationship between increased fibrinogen levels and CIN. An increase in the fibrinogen levels increased blood viscosity. Thus, microcirculation deterioration, increased endothelial shear stress, and impaired endothelial function may lead to CIN.[10,11] As they stated, therefore, the increased fibrinogen to albumin ratio may be a marker of hemoconcentration.[2] In our study, we did not calculate blood viscosity.

Although The European Society of Cardiology guidelines recommend to assess the total contrast to glomerular filtration rate (GFR) ratio to predict the risk of CIN,[12] we did not measure this ratio in presented study. Low albumin level is seen commonly in heart failure. These patients are at high risk for the development of CIN.[13,14] Unfortunately, we did not evaluate separately these patients regarding CIN.

We agree that it would be useful to evaluate contrast volume to GFR ratio in predicting CIN in patients who underwent carotid angiography. Also, heart failure patients should be evaluated separately.

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