Serum fetuin-A and aortic calcification in hemodialysis patients

To the Editor: In a recent issue of Kidney International, Stenvinkel et al [1] showed that a low fetuin-A level was associated with malnutrition, inflammation, and carotid plaque formation in patients with end-stage renal diseases. They also found that those patients with a low fetuin-A level had higher mortality than those with a high fetuin-A level, supporting the finding reported by Ketteler et al [2]. Because fetuin-A has been reported to play an important role in inhibiting ectopic calcification, it might be associated with vascular calcification, which has frequently been found in hemodialysis (HD) patients. However, the previous studies have not shown any direct association between a low serum fetuin-A level and vascular calcification in HD patients.

We have examined the association of the serum fetuin-A level with aortic calcification and carotid atherosclerosis in 141 Japanese HD patients (85 males and 56 females) with a mean age of 66.5 ± 1.2 years. The aortic calcification was evaluated by measuring the calcified area of abdominal aorta in the level of L3 and L4 from x-ray computed tomography, while the calculated intima media area (CIMA) [3] was used as an index of carotid atherosclerosis. The mean serum fetuin-A concentration was 0.28 ± 0.01 g/L, this value being similar to that of Asian dialysis patients [4]. It was significantly correlated with age (r = −0.33, P < 0.001), and with albumin (r = 0.21, P < 0.05) and prealbumin (r = 0.32, P < 0.001) levels. After classifying the patients into two groups according to the serum fetuin-A level, the aortic calcification area was significantly higher in those patients with low fetuin-A of <0.3 g/L than in those with high fetuin-A of ≥0.3 g/L (P < 0.05; Fig. 1, upper panel). Serum fetuin-A showed a significantly negative correlation with CIMA (r = −0.27, P < 0.01; Fig. 1, lower panel). Interestingly, there was a significantly positive correlation between serum fetuin-A and adiponectin, which is also known to have a protective role in atherosclerosis (r = 0.24, P < 0.01).

In conclusion, the low fetuin-A level was associated with aortic calcification and progression of atherosclerosis in HD patients. These findings reinforce the previous observation that malnutrition would accelerate atherosclerosis in these patients.

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