Letter to the Editor

Serum Cystatin C Levels Should Correlate with Endothelial Dysfunction and Inflammation Indirectly Through Renal Function

Sait Demirkol[1], Mustafa Cakar[2], Sevket Balta[1], Murat Unlu[1], Omer Kurt[2], Muharrem Akhan[2]

Gulhane Medical Faculty, Department of Cardiology[1]; Gulhane Medical Faculty, Department of Internal Medicine[2], Ankara - Turkey

Dear Editor,

We read the article "Correlation Between Serum Cystatin C and Markers of Subclinical Atherosclerosis in Hypertensive Patients" written by Francisco das Chagas Monteiro Junior et al[1] with a great interest. They concluded that serum cystatin C (s-CC) correlated with measured creatinine clearance, as expected, but no association was observed with markers of atherosclerosis or with established cardiovascular risk factors in middle-aged hypertensive outpatients. The study was designed and presented successfully. We believe that these findings will work as a guide for further studies on s-CC as a surrogate marker of endothelial dysfunction and inflammation or a cardiovascular risk marker in hypertensive patients. We thank the authors for their contribution to the literature.

According to some previous literature and established clinical practice guidelines, chronic kidney disease has been accepted as a cardiovascular risk equivalent[2,3]. If patients present an elevated serum creatinine or an elevated s-CC level as a new surrogate marker for estimating glomerular filtration rate, - this means that they have a high risk of experiencing any cardiovascular event in time. It is highly possible that there exists an indirect relationship between s-CC levels and cardiovascular risk through renal dysfunction, and its effect on endothelial functions and inflammation; therefore we cannot directly show a close association. The results of the study should not be a surprise when assessment is made within this concept.

Keywords

Cystatin C; Endothelium/abnormalities; Kidney Diseases.

Mailing Address: Sevket Balta •
Gulhane Medical Faculty, 66010, Ankara
E-mail: drsevketb@gmail.com
Manuscript received May 11, 2012; revised manuscript December 17, 2012; accepted December 17, 2012.

DOI: 10.5935/abc.20130070

References

1. Monteiro Junior Fd, Ferreira PA, Nunes JA, da Cunha Junior CP, Brito RL, Costa JH, et al. Correlation between serum cystatin C and markers of subclinical atherosclerosis in hypertensive patients. Arq Bras Cardiol. 2012;99(4):899-906.
2. Goolsby MJ. National Kidney Foundation Guidelines for chronic kidney disease: evaluation, classification, and stratification. J Am Acad Nurse Pract. 2002;14(6):238-42.
3. Martin LC, Franco RJ. [Renal disease as a cardiovascular risk factor]. Arq Bras Cardiol. 2005;85(6):432-6.

Reply

We thank you for reading our article and, especially, for acknowledging the scientific value of our research. Indeed, it is a subject that has aroused much interest in the international literature in the past few years. The role of cystatin C as an endogenous marker of glomerular filtration is well established, and is considered superior to simple serum creatinine determination. However, innumerable studies published in the past 5 years have shown a significant association between serum cystatin C levels and several cardiovascular outcomes, including mortality. Thus, a hypothesis was made that this association could not be due only to cystatin C role as a marker of renal dysfunction, which is known to be a cardiovascular risk predictor, but also to a direct relationship with the atherosclerotic process, since this protein works as a potent natural inhibitor of cysteine proteases, enzymes whose levels are elevated in the atherogenic process. Therefore, given that controversy remains in the literature over the extra-renal role of cystatin C as a cardiovascular risk marker, we believe that our negative finding regarding to its correlation with two surrogate atherosclerosis markers analyzed simultaneously has added relevant evidence to clarify this issue, thus corroborating the thesis that cystatin C is merely a better renal function marker, which, in turn, is definitely implicated, as is well known, in the cardiovascular risk.

Sincerely,

Francisco das C. Monteiro Jr