Serum nitric oxide level in patients with coronary artery ectasia

To the Editor,

We read the article entitled "Serum nitric oxide levels in patients with coronary artery ectasia" written by Gürlek et al. (1) and published in Anatol J Cardiol 2016;16:947-52 with great interest. Though prevalence of coronary artery ectasia (CAE) has increased with use of advanced imaging techniques in cardiology practice, the main etiological factor and mechanism is still uncertain. While atherosclerosis is the main etiological factor in adults, Kawasaki disease is the most common cause in children and young adults.

Many trials have been performed, both prospectively and retrospectively, to understand the underlying mechanism and related conditions of CAE. Prospective studies are always more valuable and significant. Prospective study is a longitudinal study that follows over time a group of similar individuals who differ with respect to certain factors under study to determine how these factors affect rates of a certain outcome (2). In prospective studies, results are collected at regular time intervals moving forward, so recall error is minimized. In retrospective studies, selection and information bias can negatively impact the veracity of the study (3). In this trial, the authors stated in the methods section that it was designed as a prospective protocol. But in the second paragraph, they explained that they had evaluated the coronary angiograms (CA) and selected patients retrospectively. We think this discrepancy will create questions for readers. If serum nitric oxide (NO) level detection was done long after CA, the results of the study will be affected, since risk factors for coronary artery disease (CAD) such as diabetes mellitus, hypertension, and smoking alone may increase NO levels in CAE patients. In addition, CAE, which is attributed to atherosclerosis in 50% of cases (4), may progress to CAD over time, and CAD can also increase NO level. Follow-up angiograms are needed to demonstrate absence of CAD in both groups, and most particularly in CAE patients. Authors should explain if blood samples were taken just after CA or later. In either case, this trial can be accepted as a cross-sectional study but not a prospective study. A second issue is control group selection. We wonder if they were selected consecutively, like the CAE patients, or randomly assigned. If the authors would share the power analysis status with us it would be valuable and informative for readers.

Meanwhile, we are grateful to the authors. They performed a great study that helps to clarify an uncertain issue.

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Author`s Reply

To the Editor,

We would like to thank the authors for their interest in our study and critical comments about our article. We designed our trial to be a prospective evaluation of whether there was an association between coronary artery ectasia (CAE) development and decreased serum nitric oxide (NO) level that occurs in endothelial dysfunction since, as was mentioned, prospective studies have always been more valuable and significant than retrospective ones.

In the second paragraph of the methods section we wanted to point out the total number of coronary angiography (CA) procedures evaluated for CAE without exclusion criteria. In the section regarding laboratory analyses it was mentioned that venous blood sample of approximately 10 mL was collected by venipuncture from each patient 1 day after CA and following a 12-hour fasting period in order to analyze total blood counts, biochemical parameters, and NO levels. So it is clear that serum NO level measurement was not performed long after CA. Since there was no time interval that would have potential to affect the results of the study in terms of risk factors leading to CAE development and progression of atherosclerosis, control coronary angiographies were not needed during follow-up period.

Control group selection was the second topic mentioned. Patients with normal coronary arteries were also selected consecutively, like CAE patients, to prevent bias. A power analysis suggested that a sample size of 80 patients (40 in each group) was enough to provide power of 0.91 (α=0.05).

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Proper diagnosis of antithrombin III deficiency

To the Editor,

We read the article written by Hayıroğlu et al. (1) entitled "Antithrombin III deficiency concomitant with atrial fibrillation causes thrombi in all chambers: 2-D and 3-D echocardiographic evaluation."published Anatol J Cardiol 2016; 7456: 21-2. in which they reported the case of a 62-year-old man who had antithrombin III (AT) deficiency concomitant with atrial fibrillation that caused thrombi in all chambers of the heart. The authors claimed that thrombosis in all chambers of the heart in a patient with atrial fibrillation was associated with AT deficiency. In diagnosis of AT deficiency, it should be considered that the disease is very rare. The estimated prevalence in the general population is thought to be in the range of 0.02% to 0.2% (2).

A study that re-evaluated 59 patients with pre-existing diagnosis of AT deficiency revealed AT deficiency in only 3, none of whom had a personal or family history of thrombosis (3). Above all, in patients with a thromboembolic event, testing is indicated; however, AT levels should not be measured at the time of the acute event because thrombosis may cause a transient reduction in all natural anticoagulants, including AT level, which could be misread to suggest an underlying deficiency. If the level of AT is found to be low during acute thrombosis, measurement should be repeated once the patient has recovered. A variety of commercial assays are available to measure AT level. Functional assays using the chromogenic substrate method are preferable, in order to detect both type I and type II deficiency. The test results should be evaluated according to the lower limit of the method used by the relevant laboratory and abnormal test results should lead to repeat testing with new blood sample (2).

Another subject we would like to point out is that AT deficiency is manifested primarily by recurrent venous thromboembolism. Although almost all vein sites have been reported to be involved with thrombosis in AT deficiency, isolated cardiac thrombosis in both arterial and venous chambers is not an expected clinical picture. The association of natural anticoagulant deficiencies with arterial thrombosis still remains unclear. It has been demonstrated that AT deficiency was not related to a significantly increased risk of arterial thromboembolic events (4).

If someone has inherited a natural anticoagulant deficiency, the clinical problem often occurs at an earlier age. In family studies, venous thrombosis occurred in 85% of AT deficient relatives before 55 years of age. Large patient series with natural anticoagulant deficiency, including AT deficiency, revealed no increased risk of arterial cardiovascular disease in affected family members older than age 55 (5).

In conclusion, it is not proven that AT deficiency is related to an increased risk of arterial thrombosis. Its diagnostic testing should be discouraged in the clinical evaluation of either arterial or venous thrombosis in elderly patients, particularly those with facilitating factors such as atrial fibrillation.

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Author`s Reply

To the Editor,

We are pleased to see the valuable comments and contribution of our colleagues in response to our article entitled "Antithrombin III deficiency concomitant with atrial fibrillation causes thrombi in all chambers: 2-D and 3-D echocardiographic evaluation" published in the December 2016 issue of the Anatolian Journal of Cardiology (1). We have some points to explain further.

In our report, there were many precipitating factors contributing to the thrombi in all chambers. Antithrombin III (AT) deficiency was proposed as a precipitating factor in addition to coronary artery disease and atrial fibrillation. We are aware of the rarity of arterial thrombosis secondary to AT deficiency; it was for this reason that we reported our case. There are case reports in the literature concerning arterial thrombosis due to AT deficiency (2). Other procoagulant precipitating factors accompanying AT deficiency have a role in the time of clinical incidence, as reported by