Archive of SID

Anticardiolipin Antibody in Acute Coronary Syndrome   Salehi Omran M.T. MD, et al.

Measurement of Anticardiolipin Antibody in Patients with Acute Coronary Syndrome (ACS)

M. T. Salehi Omran and F. Mirzaei

Abstract

Background- Elevated levels of anticardiolipin antibody may be associated with the high prevalence of coronary artery disease. In this study, we measured the anticardiolipin antibody level in patients with acute coronary syndrome (ACS) and a control group.

Methods- 63 patients with ACS (unstable angina - U/A, and acute myocardial infarction - AMI) presenting to our department were studied. Diagnosis of ACS was confirmed by clinical exam, history, ECG and cardiac enzyme determinations. Anticardiolipin antibody level was measured with the ELISA method in 63 patients with ACS and 130 healthy controls matched for sex and age, and samples were analyzed using SPSS and t-test.

Results- The mean age of the patients and control group were 61.59 and 51.27 years, respectively. Mean anticardiolipin antibody level in patients with ACS was higher than that in the control group (P = 0.038). In men with ACS, the mean anticardiolipin antibody level was also higher than that in the control group (P= 0.002). In patients above 45 years of age, the mean anticardiolipin antibody level was higher than that in the control group (P = 0.012).

Conclusion- Our study shows that there are higher anticardiolipin antibody levels in patients with ACS compared to controls. Thus, the evaluation of anticardiolipin antibody level in patients with ACS is necessary ***(Iranian Heart Journal 2007; 8 (3): 41-43).***

Key words: anticardiolipin antibody ■ acute coronary syndrome ■ antiphospholipid syndrome ■ atherosclerosis ■ antiphospholipid antibody

C oronary artery diseases (CAD) are one of the most common diseases in developed countries. Acute coronary syndrome, including acute myocardial infarction (AMI) and unstable angina (U/A), is one of the most common causes of death. Several risk factors are associated with CAD, and several studies have shown a relation of high anticardiolipin antibody with the occurrence of both AMI and unstable anginal pectoris.[1-6] Cardiolipin is a phospholipid located in the internal membrane of mitochondria with high concentrations in the heart, but it can be found in other autoimmune diseases like rheumatoid arthritis, Shjogren's syndrome, ulcerative colitis, malignancies, acute infections and deep vein thrombosis.[7]

It seems that there are close associations between antibody to anticardiolipin and lupus anticoagulant and antibody causes of false positive results in syphilis, and it is a member of the family of autoantibodies to antiphospholipid.[8]

The prevalence of antibody to anticardiolipin and lupus anticoagulant is 1-5% in young individuals, and its prevalence increases with

the increasing of age.[9]

Retrospective studies have shown a relationship between antibody to antiphospholipids and deep vein thrombosis, MI, and recurrent stroke.[9] In 1963, Bowie and colleagues revealed the anti-thrombosis of lupus anticoagulant and showed that its presence is associated with development of thrombosis paradoxically.[1,11] In 1980, the discovery of antibody to antiphopholipids and its lack of developing of Licit effect was identified.[10] Criteria for antiphospholipid syndrome (APS) include vessels thrombosis, abortion and thrombocytopenia and laboratory criteria include lupus anticoagulant and increasing levels of IgG or IgM antibodies to anticardiolipin. The diagnosis of APS includes the presence of at least one clinical manifestation and laboratory test result.[10]

Methods

This case-control study was conducted on 63 patients with acute coronary syndrome (ACS) (unstable angina, acute myocardial infarction) who were admitted to the CCU from 2003 to 2004. Our control group was comprised of 130 cases selected among patients without any evidence of CAD and risk factors (smoking, hypertension, diabetes, hyperlipidemia) and also matched with the case group in terms of age and gender. In both groups, the levels of IgG antibody to anticardiolipin were determined using ELISA. For all the cases, we also performed ANA, ESR and routine laboratory tests and the subjects with ANA>1.2 were excluded from the study. The proportions were compared with the student's t-test, and the data were analyzed with SPSS.

Results

The mean age of the patients was 61.59±11.2 years; and for the control group, it was 51.27±14.76 years. More than 92% of the cases and 62.3% of the control group were

more than 45 years old. 63.5% of the cases and 51.5% of the control group were male. The mean level of ACL for the cases was 4.35±2.7; and for the control group, it was 3.38±3.1 (p=0.038). The mean level of ACL in male patients was 4.47±2.22; and in male controls, it was 3.08±2.17 (p=0.002). There was no significant difference between the ACL level in the females of both groups (4.1±3.58 in cases and 3.69±3.89 in controls, p=0.634). The ACL level in cases more than 45 years old (4.42±2.87) was higher than that of the same aged control group (3.24±2.5, p=0.012). There were no significant differences between the levels of ACL in cases of Q-wave anterior MI, Q-wave inferior MI and non-Q wave MI, which was 3.82±1.65, 5.19±4.2 and 4.82±1.97, respectively.

Discussion

In this study, we showed that the levels of ACL in cases of ACS were higher than those in the control group. The levels of ACL, both in male patients and in those older than 45 years, were also higher than those of the controls. Gaeta et al. measured the levels of ACL in 108 cases and 31 controls and showed that the levels of ACL in 19 cases and 5 controls were high.[12] Susumu Takeuchi et al. reported high levels of antibody to antiphospholipids in a 20-year-old male who was treated with PTCA.[13] They recommended performing lupus anticoagulant and ACL and examination of organ thrombosis in young patients with AMI.[13]

Clinical manifestations of thrombosis in antiphospholipid syndrome are deep vein thrombosis, pulmonary thromboemboli and stroke. Occurrence of these complications is separate and rarely starts from the coronary artery.[14] Zanon et al. evaluated the incidence of thromboemboli in cases and controls with antibody to antiphopholipids and showed higher occurrence of thromboemboli in cases by comparison with controls.[14] Kitagawa,

Neville and Soltesz revealed high levels of ACL in the development of AMI.[8, 15, 16]
In conclusion, there is a relationship between the high levels of ACL and ACS.

Acknowledgement

References

1. Veres K, Lakos G, Kerenyi A. Antiphospholipid antibodies in acute coronary syndrome. Lupus 2004; 13 (6): 423–7.

2. Antman EM, Braunwald E. ST-segment elevation myocardial infarction. In: Harrison's Principles of Internal Medicine. New York, McGraw-Hill, 2005, Vol. II, chap 228, pp. 1448.

3. Libby P. The pathogenesis of atherosclerosis. In: Harrison's Principles of Internal Medicine. New York, McGraw-Hill, 2005, Vol. II, chap 224, pp. 1425-1430.

4. Libby P. Prevention and treatment of atherosclerosis. In: Harrison's Principles of Internal Medicine. New York, McGraw-Hill, 2005, Vol. II, chap 225, pp. 1432.

5. Fuster V, Alexander RW, O'Rourke R. Acute coronary syndrome. In: Hurst's The Heart. 2001, Vol. 1, chap 44, p.1373.

6. Asherson RA, Khamashta MA, Baguley E. Myocardial infarction and antiphospholipid antibodies in SLE and related disorders. Q J Med 1989; 73: 1103 – 1115 (medline).

7. Kitagawa Y. Antiphospholipid syndrome and stroke. Rinsho Shinkeigaka 2005 Nov; 45 (11): 852 – 5.

8. Levine JS, Branch W. The antiphospholipid syndrome. NEJM 2002; 346 (10): 752-5.

9. Harris EN. Antiphospholipid syndrome. Klipple, 2001; 7 (35): 1.

10. Gaeta G, Lupoli S, Brancaccio V. Anticardiolipin antibodies and early infarct of the myocardium (pumped).

11. Takeuchi S, Obayashi T, Toyana J. Primary antiphospholipid syndrome with acute myocardial infarction recanalized by PTCA. Heart 1998 Jan; 79: 96 – 98.

12. Zanon E, Prancloni P, Vianello F. Anti- beta 2 – glycoprotein I antibodies in patients with acute venous thromboembolism: prevalence and association with recurrent thromboembolism. Thromb Res 1999; 15 (964): 269 – 74.

13. Neville C, Rauch J, Kassis J. Thromboembolic risk in patients with high titre anticardiolipin and multiple antiphospholipid antibodies. Thromb Haemost 2003 Jul; 90 (1): 108 – 15.

14. Soltesz P, Veres K, Lakos G. Antiphospholipid antibodies in acute coronary syndrome. Orv Hetil 2003 Mar; 9, 144 (10): 461 – 6.