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Frequency of IgG Antiphospholipid Antibodies in Iraqi Patients with Stroke

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ABSTRACT

Objective: To examine the presence of Immunoglobulin G type of anti-cardiolipin (ACL), anti-β2GPI and antiphospholipids (aPL) antibody in Iraqi patients with cerebrovascular diseases especially ischemic stroke.

Methods: Immunoglobulin G type of antiphospholipid antibodies (beta 2-glycoprotein I [B2-GPI]), anti phosphatidyl serine, cardiolipin, anti phosphatidyl inositol and anti phosphatidic acid were ivestigated in 67 patients with ischemic stroke (aged between 20 to 90 years) during an three months period from October 2015 to January 2016 in Al-Zahra and AL-Karama Hospitals, Wassit, Iraq. The clinical, laboratory and demographic characteristics of patients with a positive results were registered.

Results: One man and six women (seven patients, 10.49%) had increased IgG types of antiphospholipid antibodies. Increased titers of IgG for anticardiolipin was observed in eight (11.94%) and seven (10.49%) of patients were positive to anti- β2GPI.

Conclusion: In spite of the different studies in the Europe, elevated titers of IgG antiphospholipid antibodies present in a large number of patients can be resulted from the existence of unidentified triggering agents (poisons and infections), that are more common in developing countries in comparison to developed countries. This hypothesis still need to more and more investigation in the future, in our country the morbidity is too high because of the repeated wars.

1. Introduction

Recently, with advances in recognition of complex pathologic stages of stroke and developing new diagnostic laboratory methods, several risk factors like (aPL) antibodies have been recognized in patients with stroke (1). In fact, different researches have revealed the correlation of strokes with anti beta 2-glycoprotein I and anticardiolipin (aCL) antibodies. The diagnosis of antiphospholipid antibody syndrome (APS) can be assumed when these antibodies are present for more than 8 weeks. Despite these antibodies are cannot be detected in a number of patients with clinical investigations of this syndrome, other types of non anticardiolipin antibodies (non aCL) for example anti phosphatidyl serine and anti phosphatidyl inositol antibody antibodies can be exist in these patients (2-9). Since many years, it has been became obvious that human B2-glycoprotein (anti B2-GPI) could differentiate between benign alloimmune aCL and autoimmune aCL (10,11). and could be a more specific agent compared to anticardiolipin in explaining the mechanism of thrombosis (12-14). Infact, in many cases, it is the only antibody known to be in charge of antiphospholipid syndrome ocuurence (15,16). With regard to the role of antiphospholipid antibodies as risk agents for ischemic stroke (particularly frequent stroke), the detection of the mentioned antibodies, in patients with strokes are necessary to avoidance of recurrent strokes. Meantime, according to the researches in the countries of Europe (17-21). many patients with APS and stroke had high titers of Immunoglobulin antibodies in contrast to researches in India (22). which have showed incresing levels of antphospholipid antibodies. therefore, in order to identification the profile of these antibodies in developing countries, further studies are mandatory. bearing in mind the poor in sufficient information about this field in Iraq, we examined the characteristics of patients with ischemic stroke aged between 20-90 years (with unclear causative agents), and the incidence of antiphospholipid antibodies, in Al-Zahra and AL-Karama Hospitals of Wassit, Iraq.

2.Methods

this descriptive study included, 67 patients (aged between 20 t0 90 years) with ischemic stroke diagnosed by Computerized Tomography scan were chosen consecutively during an three-months period from October 2015 to January 2016 in Al-Zahra and AL-Karama Hospitals, Wasit, Iraq. After registering the

outcomes all patients were clinically investigated, antiphospholipid, anti B2-GPI and anticardiolipin antibody test has been done after collection of blood samples by using enzyme linked immunosorbent assay technique, using GA4050 (Generic Assays, Diagnostica, Germany, with cardiolipin-, phosphatidyl serine-, phosphatidyl inositol-, phosphatidic acid- and B2GPI-coated microplate) for apl, GA4050 (Generic Assays, Diagnostica, Germany) for anti-B2GPI and (Aeskulisa3204 Diagnostica, Germany) for aCL diagnostic kits. Serum levels of IgG >10 IgG antiphospholipid (GPL) units, for all antibodies were considered positive. The outcomes of other laboratory tests including partial thromboplastin time, erythrocyte sedimentation rate and complete blood count (to determine abnormal laboratory values accompanied with antiphospholipid antibodies and also autoimmune disease AID), previous thrombotic attack, past medical history, demographic characteristics, treatments and clinical findings of patients with positive antibody titers, were registereded. Data were analyzed using SPSS Version 20 and minitab Version 14 software.

3.Results

Seven out of 67 patients with stroke (one male, six females, 10.49%) were positive for aCL, aPL and anti beta 2-glycoprotein I antibodies. The mean age for patients in this study was 54.53 ± 17.96 years. According to the results, 7(10.49%) patients were positive to aPL and anti beta 2-glycoprotein I, while 8(11.94%) patients were positive to aCL antibody. Also 1.49% of patients who were negative for aCL-antibody had increased titers (positive) of non-aCL antibody (raised titer of IgG of aPL with GA4041 kit). Among studied patients, deep vein thrombosis in one and history of previous cerebrovascular diseases was positive in all patients. From 7 patients with raised aPL and aCL titers, 7 of them had been admitted to hospital (cardiac and intensive care unit) with the diagnosis of transient ischemic attack and infarction. More investigation revealed that these patients had thrombotic stroke and embolic infarction was found in these patients.

4.Discussion

According to the findings of this study, 10.49% of patients were positive for all aPL antibodies. Previous studies in this field have reported varying outcomes (from 10-44%) concerning the frequency of these antibodies in patients with strokes (1,17,22-24). Arvanitakis et al (25) showed that 11% of patients had high serum aPL titers as compared to 12% in another study accomplished by Jahromi et al (26) regarding Iranian patients. In Saadatnia et al study (27), 13.1% of patients were positive for one or more aPL antibodies especially aCL, and in Goor et al (28) there study showed that the rate of aCL was 17.2%. Also about Beta2glycoprotein I the positive outcomes regarding patients were observed in 10.50% in Shojaei et al study (29). While Ruiz-Garcia et al (30) found that the rate was very low 6%. These difference may belongs b to the difference in assay methods in studied populations or because various normal ranges considered for aPL antibodies. So, further analytic researches with larger sample size are suggested to explain the reasons. The above reported differences can be explained through two hypotheses: Considering the higher prevalence of infectious diseases, more frequent exposure to toxins in developing countries, lower quality of health care services, poisons or drugs and infections can triggering the acute increase of antiphospholipid antibody through a “molecular mimicry” mechanism analogous to acute rheumatic fever. aPL antibodies have been detected in drug ingestions, malignancies, and infections (31-37). A little unknown geographical or racial differences make the peoples from developing countries have more susceptiblity to develop stroke earlier in the phase of acute aPL rising. The mentioned hypotheses must be investigated in future studies carefully.

5.Conclusion

our study shows higher rate of ischemic thrombotic stroke and high levels of IgG aPL antibodies in a large number of patients, predominance of female gender, among Iraqi adults patients with stroke. High titers of IgG aPL antibodies in a large number of our stroke patients can be caused by the existence of uneplained triggering agents (poisons or infections) or geographical differences or undetermined racial, Despite European researches, we reported here that some patients were died after few days of diagnosis as aresults to catastrophic antiphospholipid syndrome as a result to the exposure to the toxic gases during wars.

6.References

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