Original Article

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Clinical Profile of the Patients with Antiphospholipid Antibodies: Lupus Anticoagulant and Anticardiolipin Antibodies

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Abstract

A retrospective analysis of clinical profile of the patients positive for antiphospholipid antibodies (150) that are lupus anticoagulant (83) and anticardiolipin antibodies (57) was carried out from January 2015 to December 2016 in Kasturba Medical College, Manipal. The diagnosis of lupus anticoagulants was based on prolongation of dRVVT, its absence of correction with normal plasma and correction by phospholipids. The presence of antiardiolipin antibodies was based on the technique ELISA (uolmmun). Out of 150 patients positive for antiphospholipid antibodies, the mean age of presentation was 38 years, more commonly seen in the women. The frequency of thrombosis in patients positive for lupus anticoagulants was 55.5% (46), more commonly of venous origin and in the lower limbs. The frequency of patients with lupus anticoagulants presenting with abortion was 26 (31.3%), immune thrombocytopenic purpura, was 80% (67), valvular heart disease was 5 (6%), 35 (42.1%) patients had secondary LA due to autoimmune diseases like SLE, Sjogerns, APS. Anticardiolipin antibodies were present in 57 patients, more common in women. Thrombosis was seen in 28 (49%) patients, more of venous origin and in the lower limbs. Other clinical manifestations were abortions seen in 8 (9%) patients, immune thrombocytopenic purpura seen in 18 (32.5%) patients, valvular heart diseases seen in 8 (14%) of the patients and autoimmune diseases seen in 31.3% of the patients. Patients positive for both lupus anticoagulant and anticardiolipin antibodies (10) had a higher rate of thrombosis around 60%, more commonly of venous origin and had higher associations with autoimmune diseases (80%).

Keywords: Lupus anticoagulants; Anticardiolipin antibodies; SLE.

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Introduction

Antiphospholipid antibodies are a heterogenous family of immunoglobulins that includes lupus anticoagulant and anticardiolipin antibodies. Conley and Harlman in 1952, first described circulating anticoagulants in patients with SLE[1]. In 1972, Feinstein and Rapaport[2] introduced the term Lupus anticoagulants for some of these antibodies that prolong the activated partial thromboplastin time in vitro. Lupus anticoagulants behave as acquired inhibitors of coagulation, prolonging phospholipids dependent in *vitro* coagulation test but in *vivo*, these antibodies are made to interact with the platelet membrane phospholipids, increasing adhesion and aggregation of platelets, accounting for in vivo prothrombotic characteristics. Anticardiolipin antibiodies despite binding to phospholipids bind to protein called *b-2* glycoprotein and presents with various classes namely *IgG, IgM, IgA*. Antiphospholipids antibodies are detected in patients with autoimmune diseases, SLE, malignancies, drugs, infections and also in normal healthy individuals.[3–6] In the study conducted by bhattacharya *et al.*[7], the clinical features seen in LA positive patients were increase chance of thrombosis, more of venous origin, recurrent abortions and increase chance of

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bleeding. In another study conducted by runchey *et al.*[8], no association of anticardiolipin antibodies and thrombosis was found but increase chance of thrombosis when both lupus anticoagulants and anticardiolipin antibodies were present in patients. Another study conducted by Galli *et al.*[10] showed lupus anticoagulants were at a great risk of thrombosis than anticardiolipin antibodies in antiphospolipid syndrome. Based on the above studies, the present study is to establish the clinical profile of the patients positive for antiphospholipid antibodies, to establish which antibody has more chance of thrombosis and the association of these antibodies with various autoimmune diseases as limited data is available, so a retrospective study was conducted in a tertiary care hospital.

Materials and Methods

All patients positive for antiphospholipid antibodies (150), from January 2015 to December 2016 were the subjects from Kasturba Medical College, Manipal, out of which 83 patients were positive for lupus anticoagulants, 57 patients were positive for anticardiolipin antibodies and 10 patients were positive for both lupus anticoagulant, anticardiolipin antibodies.

Laboratory test-Anticardiolipin antibodies were detected by ELISA (eulommun). For Lupus anticoagulants, venous blood was collected in plastic tubes in 3.2% sodium citrate in a dilution of 9:1 and also in EDTA. Platelet-poor plasma prepared by centrifugation at *2000 g* for 20 minutes. Laboratory tests such as platelet count, the aPTT, prothrombin time (PT), diluted Russel viper venom test (dRVVT), and kaolin clotting time (KCT) were performed in all cases. Diagnosis of the presence of LA was made on the basis of prolongation of aPTT, KCT, or dRVVT, failure of its correction in a 1:1 mixture of patient normal plasma and its correction with commercially available Inositihin (Asolectin-Associated concentrates, USA).[8-9] Prolonged PT up to 7 seconds is known to occur with LA. In patients in whom PT was greater than 7 seconds, tests for thrombin time, mixing studies of aPTT with $Al(OH)_3$ and serum and fibrinogen levels were performed. Specific factor assays and factor inhibitors were looked for wherever indicated by the above mixing studies.

Results

Out of 150 people positive for antiphospholipid antibodies, the mean age of presentation was *38.11 years*, seen more commonly in females, more of venous origin presented in lower limbs. 80 people out of 150 presented with thrombosis (**Fig. 1**) out of which 46 people were lupus anticoagulant positive, 28 people were anticardiolipin antibody positive and 6 people had presence of both lupus anticoagulant and anticardiolipin antibodies (**Fig. 2**). The clinical manifestations of the patients with antiphospholipid antibodies were presence of thrombosis, presence of underlying autoimmune diseases, increase rate of abortions, presence of valvular heart diseases (**Table 1**). The frequency of thrombosis in patients positive for lupus anticoagulants was 55.5% (46), more commonly of venous origin and in the lower limbs. The frequency of patients with lupus anticoagulants presenting with abortion was 26 (31.3%), immune thrombocytopenic purpura was 80% (67), valvular heart disease was 5 (6%). 35 (42.1%) patients had secondary LA due to autoimmune diseases like SLE, Sjogerns, APS.

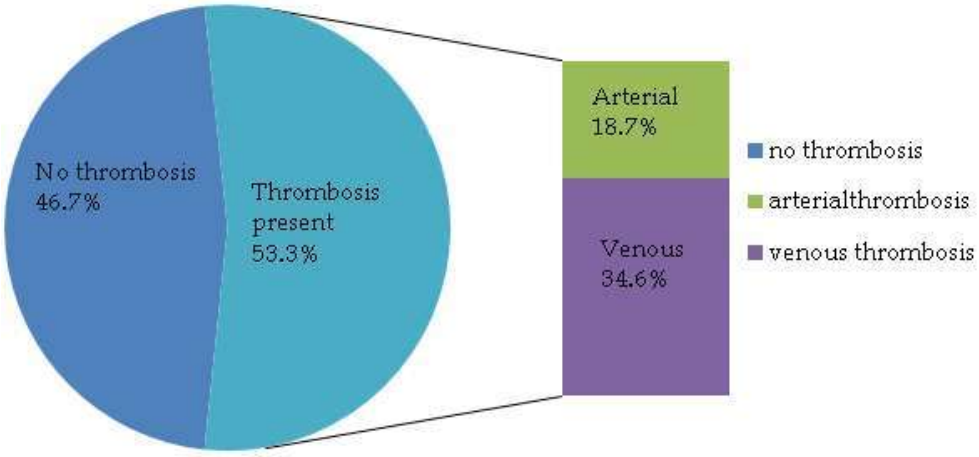

Fig. 1:

Anticardiolipin antibodies were present in 57 patients, more common in women. Thrombosis was seen in 28 (49%) patients, more of venous origin and in the lower limbs. Other clinical manifestations were abortions seen in 8 (9%) patients, immune thrombocytopenic purpura seen in 18 (32.5%) patients, valvular heart diseases seen in 8 (14%) of the patients and autoimmune diseases seen in 31.3% of the patients. Patients positive for both lupus anticoagulant and anticardiolipin antibodies (10) had a higher rate of thrombosis around 60%, more commonly of venous origin and had higher associations with autoimmune diseases (80%). The most commom autoimmune disease presented with thrombosis in patients with Antiphosphlipid antibodies is antiphospholipid syndrome. (LA-30.5%, ACA-32.1%, BothLA, ACA-66.7%) **(Figs. 3–5).**

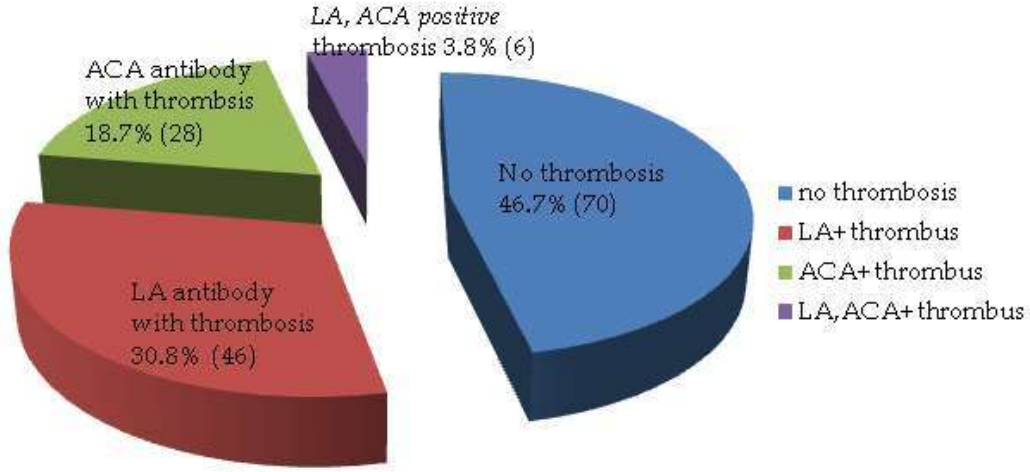

Fig. 2:

Variables		LA antibody +patients		ACA+ patients		Combined	
		n	%	n	%	n	%
Sex	Male	28	33.7	15	42	3	30
	Female	55	66.3	42	73.7	7	70
Thrombosis		46	55.4	28	49.1	6	60
Arterial		15	18.1	11	19.3	2	20
Venous		31	37.3	18	31.6	4	40
Autoimmune		35	42.1	27	47.3	8	80
SLE		14	16.9	14	24.6	2	20
APS		21	25.3	12	21.1	6	0
SJOGERN		0	0.0	1	1.8	0	0
Abortion		26	31.3	8	14	2	20
Valvular		5	6.0	8	14	0	0

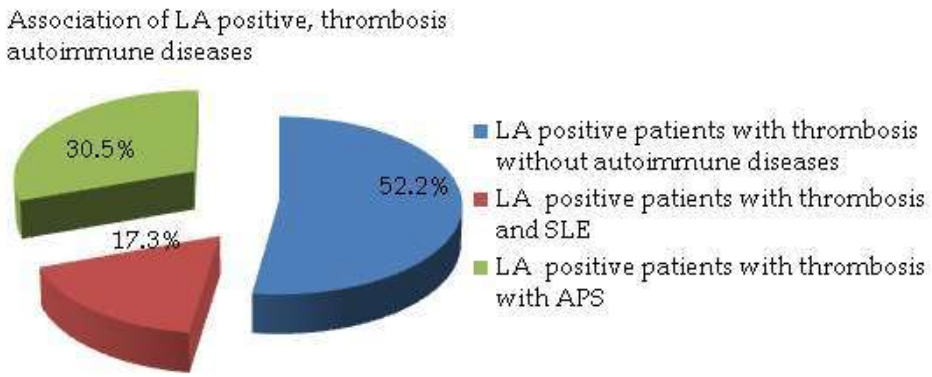

Fig. 3: Association of LA positive, thrombosis autoimmune diseases

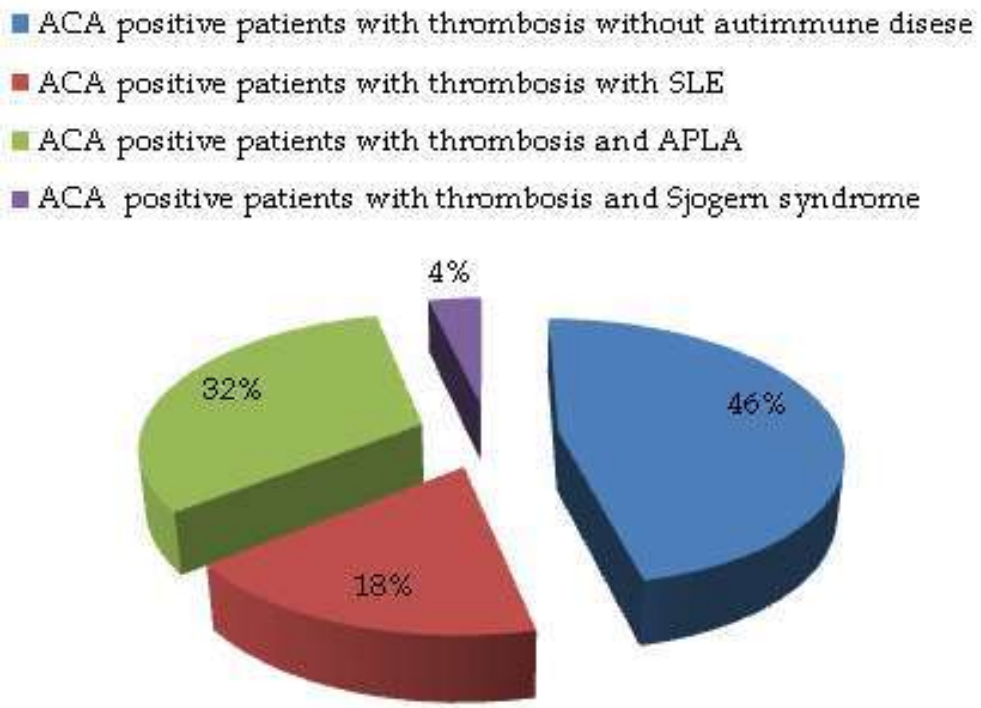

Fig. 4: Association of ACA positive, thrombosis, autoimmune diseases

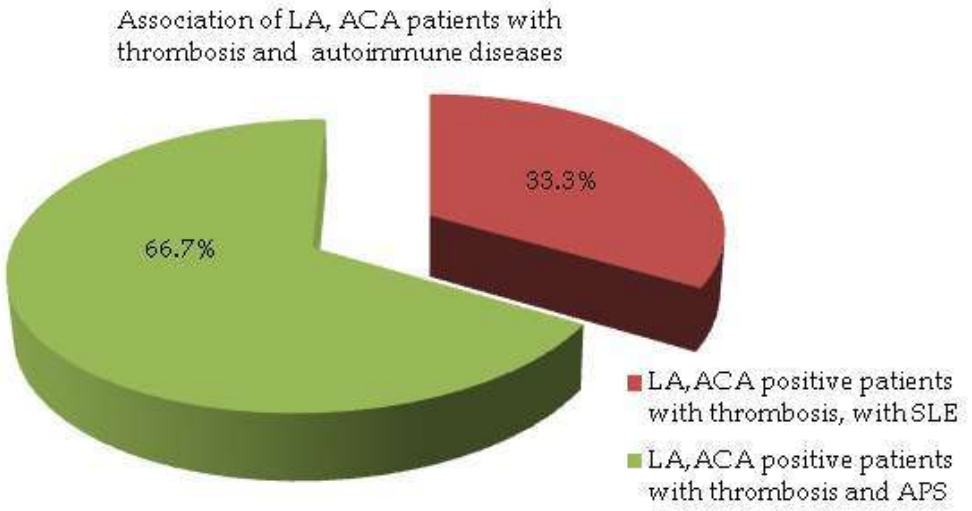

Fig. 5: Association of LA, ACA patients with thrombosis and autoimmune diseases

Discussion and Conclusion

Out of 150 patients with antiphospholipid antibodies, lupus anticoagulant was present in 83 patients, anticardiolipin antibody was present in 57 patients and presence of both was seen 10 patients. The frequency of thrombosis in patients with lupus anticoagulant was 55.4% which is higher than the published literature.[7] Venous thrombosis was more common than arterial and it was seen more commonly in lower limbs just like published articles.[7-11] The abortion rates in patients positive for lupus anticoagulant was higher in our study as compared to study conducted by bhattacharya *et al.*[7]. Other clinical manifestations in patients positive for lupus anticoagulants were immune thrombocytopenic purpura which was seen in 80% (67) of the patients, presence of valvular heart diseases seen in 5% of the patients. The frequency of secondary LA due to autoimmune diseases like SLE, APLA, Sjogerns Syndrome was lower (42%) than the primary LA (57%) in our study.

Anticardiolipin antibodies were present in 57 patients, commonly in women. Thrombosis was seen in 49% of the patients more than the study conducted by Runchey *et al.*[8], more commonly in leg and of venous origin. Other clinical manifestations were abortion (9%), presence of valvular heart disease (15.6%), immune thrombocytic purpura (32.5%) and presence of autoimmune diseases (31.3%) 10 patients had presence of both lupus anticoagulant, anticardiolipin antibodies. Rate of thrombosis seen in these patients was 60% which was higher than patients with only lupus anticoagulant or anticardiolipin antibodies. 8 patients out of 10 had underlying autoimmune disorder, most common being antiphospholipid syndrome.

It is concluded that patients with antiphospholipid antibodies present with various manifestations like thrombosis, immune thrombocytic purpura, abortions, autoimmune diseases, valvular heart diseases. Thrombosis is seen more in patients with both lupus anticoagulants, anticardiolipin antibodies just like other published literature[8], followed by patients with lupus anticoagulants and followed by anticardiolipin antibodies. Abortion rates were seen more in patients with lupus anticoagulant antibodies.[7,12,13] Due to various clinical manifestations pertaining with antiphospholipid antibodies investigating it earlier and treating it can play an vital role.

Conflict of Interest: None

References

1. Conley CL, Hartman RC. A hemorrhagic disorder caused by circulating anticoagulant in patients with disseminated lupus erythematosus. J Clin Invest. 1952;31:621–22.
2. Feinstein DI, Rappaport SI. Acquired inhibitors of blood coagulation. Prog Hemost Thromb. 1972;1:75–95.
3. Mersky C. Pathogenesis and treatment of altered blood coagulability in patients with malignant tumours. Ann NY Acad Sci. 1974;230:289–93.
4. Vaarala O, Palosno R, Kleemoia M, *et al.* Autocardiolipin response in acute virus infections. Clin Immunol Immunopath. 1986;41:8.
5. Jagan U. Transient lupus anticoagulant associated with hypoprothrombinemia and factor XII deficiency following adenovirus infection. Am Ann Haematol. 1993;67:95–99.
6. Love PE, Santoro SA. Antiphospholipid antibodies: Anticardiolipin and the lupus anticoagulant in systemic lupus erythematosus (SLE) and in non-SLE disorders. Prevalence and clinical significance. Ann Intern Med. 1990;112:682–98.
7. Bhattacharya M. Clinicohematologic Spectrum in Patientswith Lupus Anticoagulant. Clin Appl Thromb. Hemost. 2005 Apr;11(2):191-5.
8. Shauna S Runchey. Anticardiolipin antibodies as a risk factor for venous thromboembolism in a population-based prospective study. British Journal of Haematology. 2002, 119(4):1005–10.
9. Galli M, Luciani D, Bertolini G, *et al.* Lupus anticoagulants are stronger risk factors for thrombosis than anticardiolipin antibodies in the antiphospholipid syndrome: a systematic review of the literature. Blood. 2003 Mar 3;101(5):1827–32.
10. Tarek MO, Fat-Hiya MQ, Roberts GT, *et al.* Single centre review of clinicopathological characterization in 77 patients with positive lupus anticoagulant antibodies. Hematology. 2003;8:249.
11. Cervera R, Piette JC, Font J, *et al.* Antiphospholipid syndrome. Arthritis Rheum. 2002;46:1019–27.
12. O Lima F, Khamashta MA, Buchanan NMM, *et al.* A study of sixty pregnancies in patients with antiphospholipid syndrome. Clin Exp Rheumatol. 1996 Mar–Apr;14(2):131–36.
13. Lee RM, Silver RM. Recurrent pregnancy loss: Summary and clinical recommendations. Semin Reproduc Med. 2000;8:433.