Thromboangiitis obliterans in patients with systemic lupus erythematosus and antiphospholipid syndrome

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Background: considering a number of similar manifestations and antiphospholipid antibodies (aPL) in thromboangiitis obliterans (TO), antiphospholipid syndrome (APS) and systemic lupus erythematosus (SLE), it is an open question whether TO is an independent disease or only a syndrome.

The aim: to determine the relationship between vascular lesions as TO and clinical and immunologic features of SLE and APS.

Material and methods. There were 184 patients: 69 SLE, 25 «primary» APS (PAPS), 89 SLE+APS and 1 rheumatoid arthritis (RA)+APS. All patients underwent fool examination. The study was conducted within fundamental scientific research №FURS-2022-003.

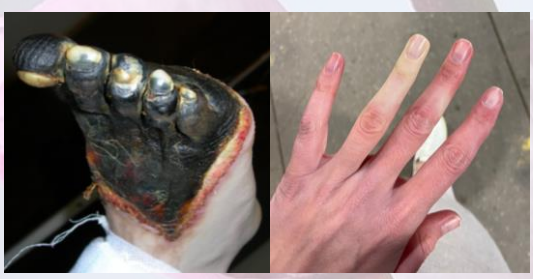

Figure 1. Thromboangiitis obliterans in patients with SLE and APS. Photos from the doctor's personal archive.

Table 1. Characteristics of studied patients

Parameters	TO n=16	No TO n=168	p
Age, years, Me [25;75%]	45 [2.5; 55.5]	36 [30; 44]	Ns
Gender M:F n (%)	5(31%) : 1(69%)	27(16%) : 14(84%)	Ns
SLE, n (%)	3 (19%)	66 (39%)	Ns
SLE+APS, n (%)	11 (69%)	78 (46%)	Ns
PAPS, n (%)	1 (6%)	24 (14%)	Ns
RA+APS, n (%)	1 (6%)	-	
Duration of SLE, years Me [25;75%]	9 [1; 19]	6.5 [1.4; 17]	Ns
Duration of APS, years Me [25;75%]	16.5 [4; 19]	2.6 [0.1; 12]	<0.001
Duration of observation, years Me [25;75%]	10 [1.8; 16]	1.7 [0,4; 8]	<0.001
aPL - positive patients, n (%)	12 (75%)	107 (64%)	Ns
aPL levels, Me [25;75%]			
○ IgG - aCL	110 [72.7; 12]	17.8 [3.3; 103]	<0.001
○ IgM – aCL	5.7 [0.1; 12]	2.2 [0.7; 11.7]	Ns
○ IgG – aB2GP1	75.5 [39; 100]	12.4 [2.6; 89.5]	<0.001
○ IgM – aB2GP1	1.1 [0.1; 7.9]	1.8 [0.5; 7.7]	Ns

Results:

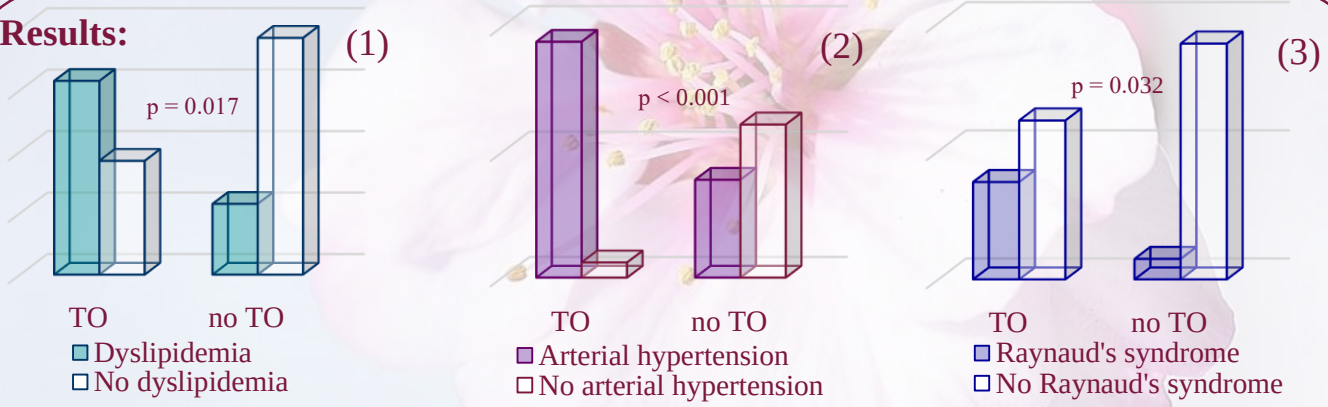

Figure 2. Dyslipidemia (1), arterial hypertension (2) and Raynaud`s syndrome (3) in patients with and without thromboangiitis obliterans.

Table 1. Results of a monomeric logistic regression analysis of possible predictors of TO

Variable	Odds ratio	95% Confidence Interval
Disease onset with signs of APS	6.6	2.4 to 18.3
Leukocytosis at disease onset without any infection	1.3	1.1 to 1.6
Arterial thromboses	1.5	1.1 to 2.1
Lupus anticoagulant	0.5	0.3 to 0.8

According to found logistic regression model, TO risk in SLE/APS patients can be prognosticated by the next formula:

Z = -8,1 + 2,3*Disease onset with signs of APS (yes–1/no–0) + 0,6*Arterial thromboses (number) + 0,4* Leukocytosis at disease onset without any infection (yes–1/no–0) – 1,2*Positive lupus anticoagulant at disease onset (yes–1/no–0).

Thus the value Z > 0.1 indicates group of SLE and APS patients with a high risk of TO development, herewith sensibility is of 86.7% and specificity is 85.6%, positive prognostic value is 91.7% .

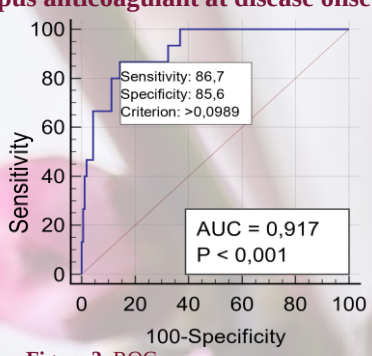

Figure 3. ROC-curve

Conclusion: disease onset with signs of APS and leukocytosis without any infection, arterial thromboses and positive lupus anticoagulant influenced the development of TO in SLE and APS patients.

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