*Supplementary material*

*Klimczak-Tomaniak D, Pędzich E, Rdzanek A, et al. Renal function is associated with endothelial dysfunction and increase in NT-proBNP in systemic lupus erythematosus and antiphospholipid syndrome patients: Pilot study. Kardiol Pol. 2023.*

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**Methods**

**Study population**

Since the duration of the disease varied between the included patients, the diagnosis of systemic lupus erythematosus (SLE) and antiphospholipid syndrome (APS) was re-verified in each of them. The SLE classification criteria according to SLICC (Systemic Lupus International Collaborating Clinics) from 2012 were applied to confirm SLE cases [1]. The diagnosis of APS was verified based on the 2006 APS classification criteria [2]. Our patients with SLE were having a baseline test performed for antiphospholipid syndrome (in the presence or absence of clinical symptoms of APS): enzyme-linked immunosorbent assays (ELISA): anticardiolipin antibodies IgG or IgM, anti-beta-2-glycoprotein-I antibodies IgG or IgM (both from Euroimmun, Lubeka, Germany) and functional assays: lupus anticoagulants (LA), (Werfen, Barcelona, Spain). Testing was repeated before pregnancy or if the patient presented with a new vascular, neurologic, or obstetric event. In patients with primary APS when diagnosing the cause of clinical symptoms - according to classification criteria - screening for antibodies associated with APS was considered: 1) for patients with arterial thrombosis or unprovoked venous thrombosis before 50 years of age, recurrent thrombosis or thrombosis at an unusual site, or thrombotic microangiopathy of unknown etiology; 2) for patients with certain obstetric manifestations, such as one or more unexplained fetal losses after week 10 of gestation, unexplained severe intrauterine growth restriction, severe or early preeclampsia, or three or more spontaneous miscarriages before week 10 of gestation (after exclusion of maternal anatomic or hormonal abnormalities or paternal/maternal chromosomal causes). A clinically significant antiphospholipid antibody profile means that the patient’s blood has tested positive multiple times (at least twice and 12 weeks apart) for one or more of the following antiphospholipid antibody (aPL) tests: lupus anticoagulant (LA) test, anticardiolipin antibody (aCL), IgG/M moderate-to-high levels, anti-Beta-2-glycoprotein-I antibody (aβ2GPI) IgG/M moderate-to-high level.

Exclusion criteria were as follows: age>85 years, history of myocardial infarction, percutaneous coronary intervention, coronary artery bypass grafting, significant coronary stenoses on coronary angiography, chronic kidney disease with eGFR < 30 ml/min/1.73m2, chronic disease limiting expected patients’ survival, implanted pacemaker, cochlear implant, no signed informed consent.

**Results**

**Table S1.** Extended characteristics of the study population (n = 66)

|  |  |
| --- | --- |
| Characteristics | Count (percentage)/Mean (±SD)/ Median (IQR) |
| Comorbidities and laboratory tests | |
| Hypertension | 40 (61%) |
| Diabetes mellitus | 0 (0%) |
| Active smokers | 7 (11%) |
| LDL-C (mg/dl) | 93 (±29) |
| NT-proBNP (pg/ml) | 97 (120) |
| Renal function |  |
| CKD category G1 | 35 (53%) |
| CKD category G2 | 23 (35%) |
| CKD category G3 | 8 (12%) |
| ACR A2 | 12 (18%) |
| ACR A3 | 1 (1.5%) |
| Pharmacotherapy | |
| Hydroxychlorochine | 49 (74%) |
| Glucocorticosteroids | 36 (54%) |
| Mycophenolate mofetil | 11 (17%) |
| Azathioprine | 10 (15%) |
| Methotrexate | 7 (11%) |
| Cyclosporine | 2 (3%) |
| Angiotensin converting enzyme inhibitors (ACE-I) | 26 (41%) |
| Beta-blockers | 25 (39%) |
| Angiotensin receptor blockers (ARB) | 12 (18%) |
| Diuretics | 13 (20%) |
| Calcium-blockers | 10 (15%) |
| Statin | 24 (36%) |
| SLE Patients (n = 50) | |
| Duration of SLE | 10 (9.5) years |
| Anti-dsDNA antibodies | 39 (78%) |
| APS Patients (n = 33) | |
| Triple positive patients | 17 (51%) |
| Thrombotic events | |
| Stroke | 7 (21%) |
| Deep vein thrombosis | 16 (48%) |
| Pulmonary embolism | 3 (9%) |
| Anticoagulant treatment | |
| NOAC | 8 (24%) |
| NOAC + ASA | 1 (3%) |
| VKA | 11 (33%) |
| VKA + ASA | 3 (9%) |
| ASA alone | 5 (15%) |
| No anticoagulant | 3 (9%) |

Abbreviations: ACR, albumin-to-creatinine ratio; APS, anti-phospholipid syndrome; ASA, aspirin; CKD, chronic kidney disease; LDL-C, low density lipoprotein cholesterol, NOAC, Non–vitamin K oral anticoagulants; VKA, vitamin K antagonist

**Table S2.** Comparison of patients characteristics between LA positive and LA negative patients (n = 33). Data are presented as count(%)/Mean±SD/Median(IQR).

|  |  |  |  |
| --- | --- | --- | --- |
| Characteristic | LA positive  (n = 23) | LA negative  (n = 10) | *P* |
| Sex (male) | 1 (4%) | 0 (0%) | 0.79 |
| Age (years) | 45 ± 12 | 49 ± 13 | 0.39 |
| Thrombotic APS\* | 18 (78%) | 5 (50%) | 0.21 |
| RHI | 1.81 ± 0.58 | 1.57 ± 0.74 | 0.34 |
| Daytime SBP (mm Hg) | 128 ± 16 | 124 ± 17 | 0.62 |
| Daytime DBP (mm Hg) | 78 ± 10 | 79 ± 8 | 0.90 |
| Nighttime SBP (mm Hg) | 116 (16) | 117 (31) | 0.83 |
| Nighttime DBP (mm Hg) | 69 ± 8 | 66 ± 8 | 0.32 |
| LDL-C (mg/dl) | 91 ± 30 | 111 ± 28 | 0.10 |
| eGFR (ml/min.1.73 m2) | 81 ± 23 | 80 ± 19 | 0.85 |
| NT-proBNP (pg/ml) | 97 (103) | 98 (170) | 0.65 |

\*Thrombotic APS defined as APS diagnosed on the basis venous and/or arterial thrombosis and persistent laboratory criteria for antiphospholipid antibodies. Abbreviations: DBP, diastolic blood pressure; eGFR, estimated glomerular filtration rate; LDL-C, low density lipoprotein cholesterol; RHI, reactive hyperemia index; SBP, systolic blood pressure;

**References**

1. Petri, M., et al., Derivation and validation of the Systemic Lupus International Collaborating Clinics classification criteria for systemic lupus erythematosus. Arthritis Rheum, 2012. 64(8): p. 2677-86.

2. Miyakis, S., et al., International consensus statement on an update of the classification criteria for definite antiphospholipid syndrome (APS). J Thromb Haemost, 2006. 4(2): p. 295-306.