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Independent validation of the antiphospholipid score for the diagnosis of antiphospholipid syndrome

Savino Sciascia[1,2], **Maria Laura Bertolaccini**[1], **Dario Roccatello**[2], **Munther A Khamashta**[1,3]

[1]Lupus Research Unit, The Rayne Institute, Division of Women's Health, King's College, London, UK

[2]Centro di Ricerche di Immunopatologia e Documentazione su Malattie Rare (CMID), Università di Torino, Torino, Italy

[3]Louise Coote Lupus Unit, Guy's and St Thomas' NHS Foundation Trust, St Thomas' Hospital, London, UK

Antiphospholipid syndrome (APS) is a heterogeneous entity with a wide variation in clinical course and laboratory profile. It is accepted that the presence of antiphospholipid antibodies (aPL) confers a higher risk for both thrombosis and pregnancy morbidity, but quantifying such a risk is still a challenge. As a consequence, clinicians are unable to tailor the treatment according to the risk.

Recently, Otomo *et al* [1] developed and validated the so-called 'antiphospholipid score' (aPL-S) by testing multiple aPL and evaluating the aPL-S efficacy for the diagnosis of APS and predictive value for thrombosis. This score was shown to be a useful quantitative index for diagnosing APS and to be valuable as a predictive marker for thrombosis in autoimmune diseases.

In order to independently validate the aPL-S, we applied the proposed score system to a cohort of 211 consecutive patients who attended the Louise Coote Lupus Unit (St Thomas Hospital, London, UK). All the patients fulfilled the 1982 criteria for systemic lupus erythematosus (SLE).[2]
Overall, 81 patients fulfilled criteria for APS [3] and 73 patients had a history of thrombosis (48 arterial, 41 venous thrombosis). Out of 144 women who had ever been pregnant, 41 had a history of miscarriages and 34 a history of fetal death. To validate the aPL-S, we adapted the proposed score using our inhouse cut-off values for aPL testing as previously reported or according to the current guidelines, as appropriate.[3–8] aPL profile included anticardiolipin antibodies, lupus anticoagulant by partial thromboplastin time (aPTT – IL-test APTT-SP, Instrumentation Laboratory, Milan, Italy) and dilute Russell viper venom time, anti-β2glycoprotein-I antibody, and antibodies to phosphatidylserine–prothrombin complex.
aPL-S was calculated for each patient by adding together the points corresponding to the risk factors as described.[1] Higher values of aPL-S were seen in patients who experienced thrombosis and/or pregnancy loss when compared with those without clinical events (median 17 (0–86) vs 4 (0–31), $p<0.001$). When analysing clinical subgroups, patients who experienced thrombosis or pregnancy loss showed higher aPL-S compared with those without clinical events (median 18 (0–86) vs 4 (0–27), $p<0.001$ for thrombosis; 7 (0–69) vs 3 (0–29), $p=0.029$ for pregnancy loss) (figure 1). In our cohort, when the cut-off level for the aPL-S was defined as 30, as per the original study by Otomo *et al*,[1] the sensitivity and specificity of the aPL-S were 39% and 95%, respectively, compared with 37% and 96% shown in the Japanese cohort. The positive predictive value of an aPL-S ≥30 was 36%, whereas the negative predictive value was 91%.

We demonstrated that the aPL profile can be successfully quantified by the aPL-S in an independent cohort of SLE patients. The aPL-S correlated with a history of thrombosis or pregnancy loss in our cohort, suggesting that the aPL-S is a suitable quantitative marker of APS.

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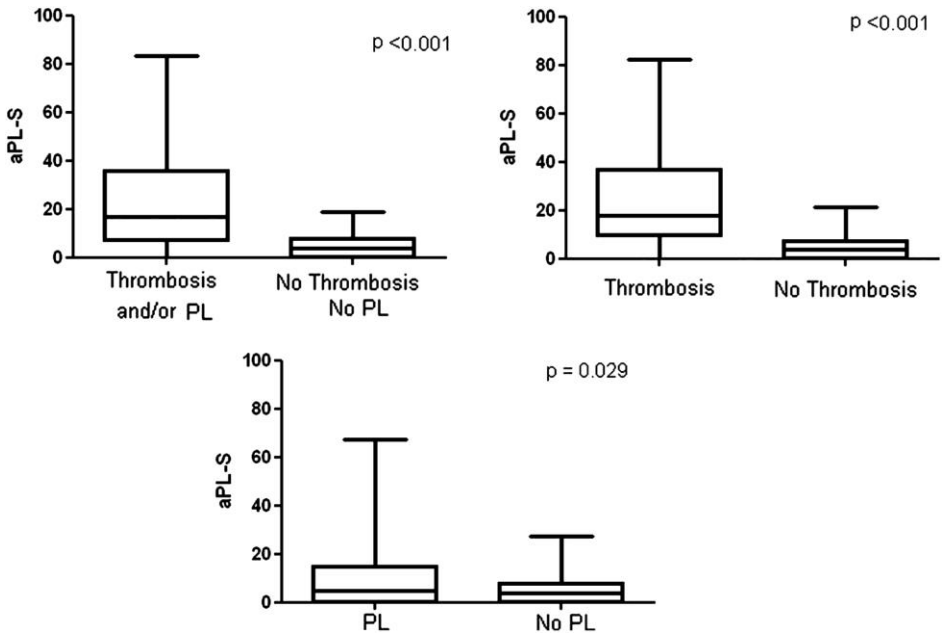
Figure 1



Antiphospholipid score (aPL-S) in systemic lupus erythematosus (SLE). The aPL-S was calculated according to Otomo *et al*.1 Data are shown as box plots, where each box represents the 25th to 75th percentiles: lines inside the box represent the median. The whiskers represent the 95% CI. Higher values of aPL-S were seen in patients who experienced thrombosis and/or pregnancy loss (PL) when compared with those without clinical events ($p<0.001$ by Mann–Whitney U test). When analysed separately, patients who experienced thrombosis or PL showed higher aPL-S when compared with those without clinical events.