patients, concurrent renal biopsy was performed, unless contraindicated. The
ISN/RPS criteria were used to assess the histopathologic features of LN. Those
Patients were further subcategorized into 2 groups; active proliferative (ISN/RPS
classes III/IV) and non-proliferative (classes III/V).
Results: The serum concentrations of Axl and ferritin were significantly higher in
patients with active SLE than inactive SLE (3765±235 vs. 2513±130 pg/ml, P =
0.001) and (111±26 vs. 18±4ng/ml, P = 0.0001) respectively. Serum Axl levels were
significantly higher in active renal versus active non-renal SLE patients (3765±235.3
vs. 2825±200.7 pg/ml, P = 0.04). In the active renal patients with paired kidney tis-
 sue and blood samples, none of the biomarkers tested discriminated classes of LN,
although serum Axl, ferritin and IGBP4 levels were higher in the proliferative sub-
group. The levels of Axl, ferritin and IGBP4 correlated significantly with SLEDAI
scores (Axl, r = 0.58, P < 0.0001; ferritin, r = 0.53, P < 0.0001; IGBP4, r = 0.229, P =
0.03). However, only serum Axl levels correlated significantly with the renal SLEDAI
(r = 0.46, P = 0.01). The levels of Axl, IGBP4 and sTNFR2 correlated with decreased
C3 levels (r = - 0.54, P < 0.0001; r = - 0.29, P = 0.007; r = - 0.29, P = 0.007) respec-
tively. Only serum Axl and ferritin correlated with urinary PCR (r = 0.42, P < 0.0001; r=
0.22, P = 0.04) respectively. These markers were more specific, but less sensitive, in
detecting concurrent SLE activity than elevated anti-dsDNA or decreased C3. The
specificity values of serum ferritin and IGBP4 for concurrent active lupus nephritis
were higher than anti-dsDNA or C3. Serum ferritin was the best predictor of global
SLE activity (AUC 0.81, P< 0.0001), followed by C3 (AUC 0.79, P < 0.0001) then
Axl (AUC 0.71, P = 0.002), while both Axl and C3 were the best predictors of lupus
nephritis activity (AUC 0.72, both).
Conclusion: In pediatric SLE patients, serum ferritin and Axl perform better than
traditional yardsticks in identifying disease activity, either global or renal. The
performance of these serum markers should be explored further in a longitudinal
cohort of pediatric SLE patients.
References:
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THE EFFECT OF ANITPHOSPHOLIPID ANTIBODIES ON
APTT WAVEFORM PATTERNS

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Background: Patients with antiphospholipid antibody (aPL) are said to be at
increased risk for thrombosis, however it is difficult to predict whether they will
develop thrombosis. In recent years, it has been revealed that the
characteristics of the second derivative curve of APTT waveform with aPL
positive patient is biphasic changes1,2. As first step in predicting the risk of
thrombosis, we sought to understand the effect of aPL on APTT waveform
patterns.

Objectives: To analyze the characteristics of APTT waveforms according to the
background diseases and the presence of aPL.

Methods: Patients who underwent coagulation function tests from 2017 to 2019
were analyzed. A coagulation waveform (Clot waveform: CW) was drawn using a
fully automatic coagulation time measuring device manufactured by Instrumenta-
tion Laboratory. From the APTT waveform, the 1st derivative curve (DC) indicating
the coagulation speed and the 2nd DC indicating the coagulation acceleration
were depicted to measure the 1st DC height, 2nd DC peak 1 time, and 2nd DC peak
1 height (Figure1). Patients were divided into CTD with aPL-negative patients
(group A), aPL-positive patients with no prior thrombosis (group B), and
antiphospholipid antibody syndrome (APS) (group C). Patients characteristics
and aPL (anti-cardiolipin [CL] antibody IgM, anti-CL antibody IgG, anti-CLβ2GP1
complex antibody, LA-APTT, and LA- DRVVT) status were examined. A further
analysis was performed according to the numbers of positive aPL. Comparison
between the three groups were made by the one-way ANOVA method, with sig-
nificant differences set as p-values <0.1. Factors with significant differences were
analyzed by Steel-Dwass test. APTT waveforms were analyzed according to the
numbers of positive aPL by least squares methods. Furthermore, to determine the
cut-off value of APTT, 1st DC height, 2nd DC peak 1 time, and 2nd DC peak
1 height for each case with 2 or more positive aPLs and 3 positive aPLs, area
under the curve (AUC) of the receiver operating characteristic (ROC) curve, sen-
sitivity and specificity were calculated.

Results: The APTT waveform was analyzed in 61 patients (51 women, 83.6%)
with average age of 54.1 ± 17.1 years. Group A was 26 cases, Group B was 18
cases, and Group C was 17 cases. APTT, 2nd DC peak 1 time, 2nd DC peak
1 height, 1st DC peak time were significantly different among A, B, and C groups
(p < 0.01). APTT, 1st DC peak height, 2nd DC peak 1 time, and 2nd DC peak
1 height differed among the number of aPL (p < 0.01, respectively). APTT and 2nd
DC peak 1 time prolonged by 9.43 (seconds) and 16.3 (seconds) respectively
according to the number of aPLs increased, and 1st DC peak height (mabs/s)
and 2nd DC peak 1 height (mabs/s)2 decreased by 56.4 (mabs/s) and 223.9
(mabs/s)2 respectively according to the number of aPLs decreased (Table 1).
APTT> 35.2 (seconds) (sensitivity 80%, specificity 80.4%), 2nd DC peak 1
height> 302 (mabs/s)2 (sensitivity 80%, specificity 91.3%) were relevant to the
presence of two or more aPLs and APTT> 35.2 (seconds) (sensitivity 100%,
specificity 80%), 2nd DC peak 1 height> 302 (mabs/s)2 (sensitivity 100%, specif-
icity 90%) were relevant to the presence of three aPLs.

Results: The APTT waveform was analyzed in 61 patients (51 women, 83.6%)
with average age of 54.1 ± 17.1 years. Group A was 26 cases, Group B was 18
cases, and Group C was 17 cases. APTT, 2nd DC peak 1 time, 2nd DC peak
1 height, 1st DC peak time were significantly different among A, B, and C groups
(p < 0.01). APTT, 1st DC peak height, 2nd DC peak 1 time, and 2nd DC peak
1 height differed among the number of aPL (p < 0.01, respectively). APTT and 2nd
DC peak 1 time prolonged by 9.43 (seconds) and 16.3 (seconds) respectively
according to the number of aPLs increased, and 1st DC peak height (mabs/s)
and 2nd DC peak 1 height (mabs/s)2 decreased by 56.4 (mabs/s) and 223.9
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height> 302 (mabs/s)2 (sensitivity 80%, specificity 91.3%) were relevant to the
presence of two or more aPLs and APTT> 35.2 (seconds) (sensitivity 100%,
specificity 80%), 2nd DC peak 1 height> 302 (mabs/s)2 (sensitivity 100%, specif-
icity 90%) were relevant to the presence of three aPLs.