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## Anti-phospholipid antibodies are associated to adverse pregnancy outcome

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**Background:** Obstetric complications including spontaneous abortions, intrauterine growth retardation, and preeclampsia often occur in women with antiphospholipid antibodies (aPL), suggesting that these antibodies may influence embryonic implantation and induce thrombosis of the uteroplacental vasculature. aPL represents a heterogeneous group of immunoglobulins detected by coagulation tests as lupus anticoagulants (LA) or by an enzyme-linked immunosorbent assay (ELISA) as anticardiolipin antibodies (aCL), antibodies against  $\beta$ 2-glycoprotein I (anti- $\beta$ 2GPI) or anti-prothrombin antibodies. The last is not yet included in the laboratory criteria for antiphospholipid syndrome (APS) despite many studies demonstrated their importance in the diagnosis of APS. We developed an in-house aPS/PT ELISA reporting it as an optimal method for determination of clinically relevant anti-prothrombin antibodies exhibiting the highest proportion of LA. Clinical relevance of aPL was mainly reported for patients with APS and thrombosis. However, there is still little information on the association between these antibodies and adverse pregnancy outcomes.

**Aim:** The aim of our cross-sectional retrospective study was a) to evaluate the association of different aPL with a history of pregnancy complications and b) to investigate the levels of aPL in a cohort of unselected Slovenian patients with a history of pregnancy complications treated in 2014 at the Department of Rheumatology, University Medical Center Ljubljana.

**Materials & Methods:** The first cohort comprised systematically collected sera from 169 female patients (mean age  $33 \pm 5$  years) with pregnancy loss defined by APS criteria. The second cohort comprised sera from 95 consecutive female patients (mean age  $38 \pm 9$  years) with a history of obstetric APS manifestations visiting our clinic in 2014. All sera were screened for LA and IgG/IgM subtypes of aCL, anti- $\beta$ 2GPI, and aPS/PT1,2.

**Results:** In the first systematically collected cohort 41/169 patients (24%) were positive for at least 1 measured aPL. Among those, the highest prevalence was found for aCL and aPS/PT (13%) followed by anti- $\beta$ 2GPI and LA (7%). We found (11/169) of patients with adverse pregnancy outcome with solely aPS/PT positivity, therefore, additional 7% patients could be evaluated for APS when considering aPS/PT as an additional diagnostic marker. In the second cohort of 95 consecutive visits of female patients with obstetric APS manifestations, 28 (27%) were positive for at least 1 measured aPL with the highest prevalence found for aCL (18%). aPS/PT was found in 10% of patients.

**Conclusion:** aPL were present in approximately one-quarter of patients with adverse pregnancy outcome with aCL antibodies being the most prevalent. aPS/PT are associated with adverse pregnancy outcome irrespective of other aPL and could detect additional cases of APS.

## Biography

Polona Žigon is currently working as Research Analyst in the Department of Rheumatology at University Medical Center Ljubljana. She graduated from Interdisciplinary Studies of Microbiology at Biotechnical Faculty of the University of Ljubljana and in 2003, she took her professional examination at the Ministry of Health. She completed her Master's degree in 2008 with the thesis entitled "Characteristics of antiprothrombin antibody binding in vitro and in vivo" at the same university. During her Postgraduate studies in Biomedicine, geared towards Clinical Biochemistry, she completed six months of research training in the laboratory of Professor Takao Koike at University of Hokkaido, School of Medicine in Sapporo, Japan. In July 2014, she completed her Doctoral thesis titled "Antiprothrombin antibodies binding using in vitro and ex vivo models indicate their clinical relevance for autoimmune patients" under Professor Dr. Borut Božič, Chairman, Faculty of Pharmacy as mentor. Since 2010, she has authored more than 15 original articles, two chapters, one patent application and has acted as co-mentor for Bachelors' and Masters' thesis. She was invited as a Lecturer/Speaker to several conferences and shows more than 30 published scientific contributions. She is currently a member of the Chamber of Laboratory Medicine of Slovenia.

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