

The influence of COVID-19 pandemic on diagnostic work in our platelet laboratory

Mojca Jež, Eva Kocjan, Tomaž Jerlah, Katerina Jazbec, Elvira Maličev, Primož Rožman
Blood Transfusion Centre of Slovenia

COVID-19 pandemic had a major impact on work in hospitals and clinical laboratories. In our lab, platelet antibody detection is performed by using platelet immunofluorescence test (PIFT) and Luminex's bead-based detection technique (PAKLx) for screening and specification of platelet auto/allo antibodies. For HIT cases, EIA screening and an in-house flow cytometry assay for assessment of the activation are used. Since various coagulation and platelet function abnormalities are expected in COVID-19 patients, we anticipated that our yearly data analysis might reveal a substantial change in the frequency of orders from the clinical wards to our laboratory, as well as in the structure of pathological ("positive") results.

In fact, there was a general increase in the number of diagnostic tests during 12 months of pandemic (June 2020 - May 2021) compared with the pre-pandemic period (January - December 2019). In 2019, 470 orders were received, and during the pandemic, the number of orders increased to 613 (index 1.3); among them, 122 screened patients were confirmed as SARS-CoV-2 positive.

In addition, we have also noticed some differences in the structure of positive results when testing for various platelet autoantibodies. During the COVID-19 pandemic, our PAKLx tests yielded fewer positive results than expected (21.7% in the pre-epidemic period versus 14.0% during the pandemic; $p = 0.0106$). PIFT tests also yielded slightly fewer positive results, but this difference was not statistically significant (16.8% vs. 14.4%; $p = 0.0978$). The frequency of positive HIT EIA tests did not change, whereas the frequency of positive functional flow cytometry tests for HIT increased considerably (30.6% versus 53.3%; $p = 0.0082$), which was even more pronounced in the SARS-CoV-2 positive group, in which 66.7% had positive tests with functionally active HIT antibodies.

It can be concluded that, contrary to our expectations, the incidence of irregular platelet autoantibodies did not increase during the COVID-19 pandemic, while the activity of HIT antibodies increased substantially, which deserves further biological evaluation.