

## P1601 THE ASSESSMENT OF PREDICTIVE ROLE OF PROTEIN C AND S FOR CRITICAL FORM OF COVID-19

**Topic:** 30. Infections in hematology (incl. supportive care/therapy)

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**Background:** COVID-19 is characterized by an excessive immune response in the host “cytokine storm”, followed by extensive tissue damage, dysfunctional coagulation and thrombotic complication. The presence of thrombosis worsens the evolution of COVID-19 caused by refractory hypoxemia, respiratory failure, disseminated intravascular coagulation or death.

**Aims:** The main objective of our study was to evaluate the presence of any correlation between anticoagulants (protein S, protein C, antithrombin III) and clinical/laboratory features of critical forms of COVID 19 admitted in intensive care unit (ICU).

**Methods:** This observational study (retrospective and prospective) included 268 COVID-19 patients hospitalised Colentina Clinical Hospital Bucharest 2020-2021 and confirmed by real-time reverse transcriptase polymerase chain reaction (PCR) test. The study group was divided into two groups depending on the type of medical care required - medical care (non-ICU group) and intensive care (ICU group).

### Results:

The level of protein C and S is lower in COVID-19 patients with thrombosis compared with patients without thrombotic complication (median value: protein S: 43.5 (8-102) vs. 56 (18-144),  $p=0.05$ ; protein C: 71 (15-169) vs. 95 (16-200),  $p=0.02$ ). Critical forms of COVID 19 is associated with low level of protein S (ICU: 48 (8-122) vs. non-ICU: 63 (18-144),  $p=0.001$ ); protein C ( ICU: 82 (15-170) vs non-ICU: 96.5 (55-200),  $p=0.02$ ). There are significant correlation between low level of protein S and duration of hospitalization in ICU department,  $\rho=-0.367$  (-0.541- -0.163)  $p=0.0007$ . In survival analyses only protein C level was predictive for unfavourable evolution, Wald 8.55,  $p=0.003$ . This parameter associated with high level of ferritine and IL-6, are very important in evaluation of COVID-19 patients with unfavourable evolution. Prolonged positivity is associated with low level of protein S,  $\rho -0.517$  (-0.75- -0.171),  $p=0.006$ .

### Summary/Conclusion:

Evaluation of level of protein S and C in COVID-19 patient is very important at the admission moment in ICU. Low level of protein S is associated with prolonged positivity, unfavourable evolution and hiperinflammation. It also associated with thrombotic complication and cytokine storm (IL-6), all these modification contributed in high rate of ICU admission

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