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## RESEARCH AREA: HEALTH - EPIDEMIOLOGY - VIRUS - IMMUNOLOGY

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**TITLE:** Hematologic laboratory findings and outcome of COVID-19 patients admitted to Ancona University Hospital - AOU Ancona. A data mining analysis.

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**UNIVPM Research Group:** Clinica di Ematologia

**Research activity description:** Particular laboratory features have been associated with worse outcomes of COVID-19: lymphopenia, elevated liver enzymes, elevated lactate dehydrogenase (LDH), elevated inflammatory markers (C-reactive protein [CRP], ferritin), elevated D-dimer ( $> 1$  mcg/mL), elevated prothrombin time (PT), elevated troponin, elevated creatine phosphokinase (CPK), acute kidney injury. Common laboratory findings among hospitalized patients with COVID-19 include lymphopenia, elevated aminotransaminase levels, elevated lactate dehydrogenase levels, and elevated inflammatory markers. Lymphopenia is especially common, even though the total white blood cell (WBC) count can vary. On admission, many patients with pneumonia have normal serum procalcitonin (PCT) levels; however, in those requiring ICU care, they are more likely to be elevated. Several laboratory features, including high D-dimer levels and more severe lymphopenia, have been associated with mortality.

We aim to evaluate outcome of patients admitted to Ancona University Hospital with COVID-19, including need for ICU admission, mechanical ventilation, based on blood count and coagulation tests at admission. Further, we aim to:

- Evaluate potential predictive parameters of mortality;
  - Perform a stratification of illness severity: mild (non-pneumonia and mild pneumonia), severe (dyspnea, respiratory frequency  $\geq 30$ /min,  $SpO_2 \leq 93\%$ ,  $PaO_2/FiO_2 < 300$  and/or lung infiltrates  $> 50\%$ ) and critical disease
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(respiratory failure, septic shock, and/or multiple organ dysfunction or failure), depending on haematological parameters upon admission

- Evaluate the incidence of thrombotic events in hospitalized patients
- Evaluate the incidence of major complications and/or organ dysfunctions in hospitalized patients
- Evaluate the duration of hospital stay
- Evaluate the rate of discharge from the emergency department depending on hematological parameters

**Collaborators:** Dr. Marcello Tavio - Prof. Marcello D'Errico - Dr. Aldo Salvi - Dr. Marco Moretti - Prof. Abele Donati - Dr.ssa Elisabetta Cerutti - Dr. Gianpiero Perna - Prof. Stefano Gasparini - Dr.ssa Lina Zuccatost

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