



AML-168

The Assessment of COVID-19 Evolution in Patients with Oncological Diseases Admitted in an Intensive Care

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Background

Patients with solid tumors or hematologic malignancies could have severe COVID-19 outcomes.

Patients diagnosed with these types of oncological diseases presented risk factors for severe forms of COVID-19: obesity, arterial hypertension, thrombosis, and diabetes mellitus.

Objective

The aim of this study was to evaluate the particularities presented in patients admitted to the intensive care unit (ICU).

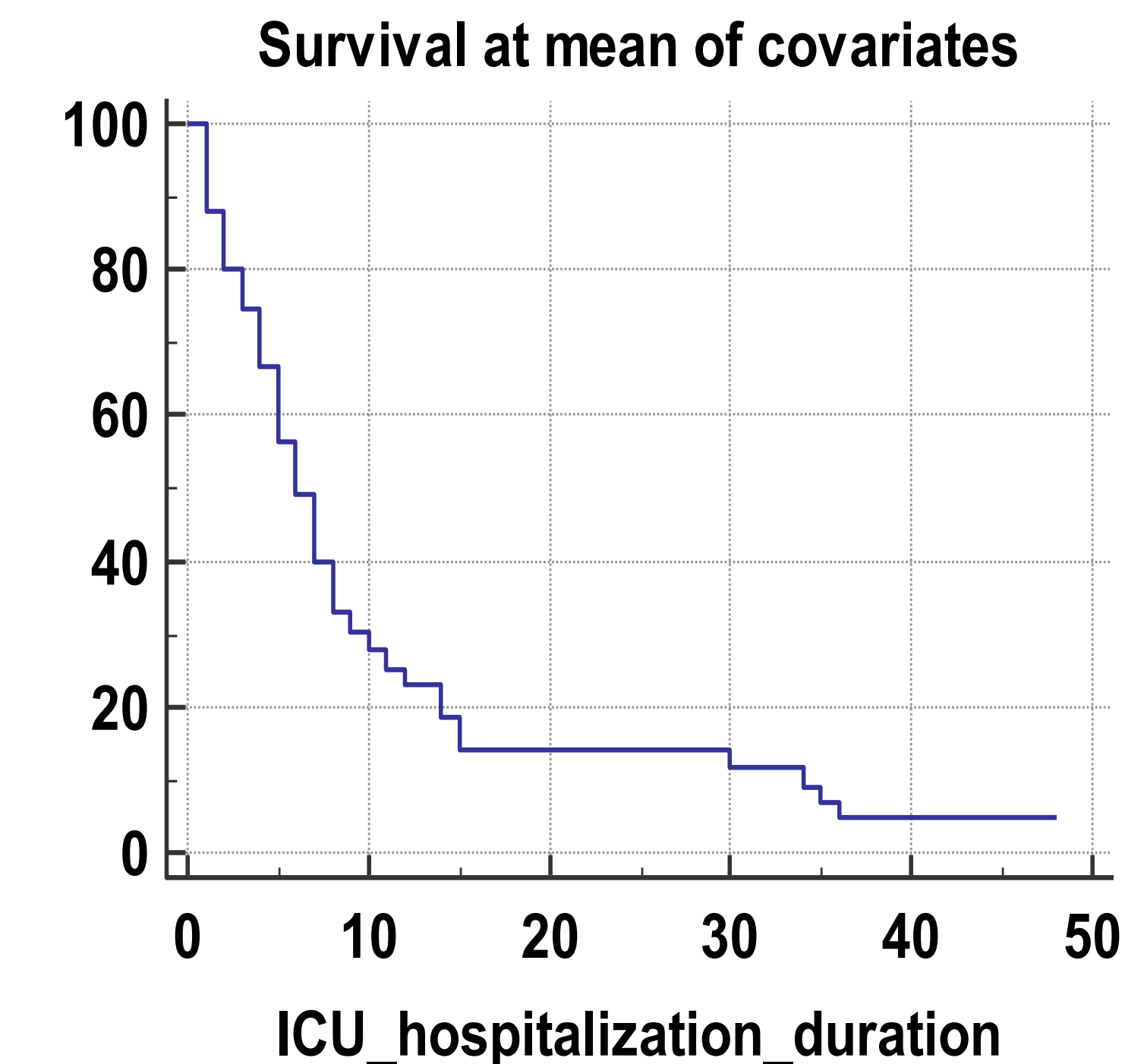
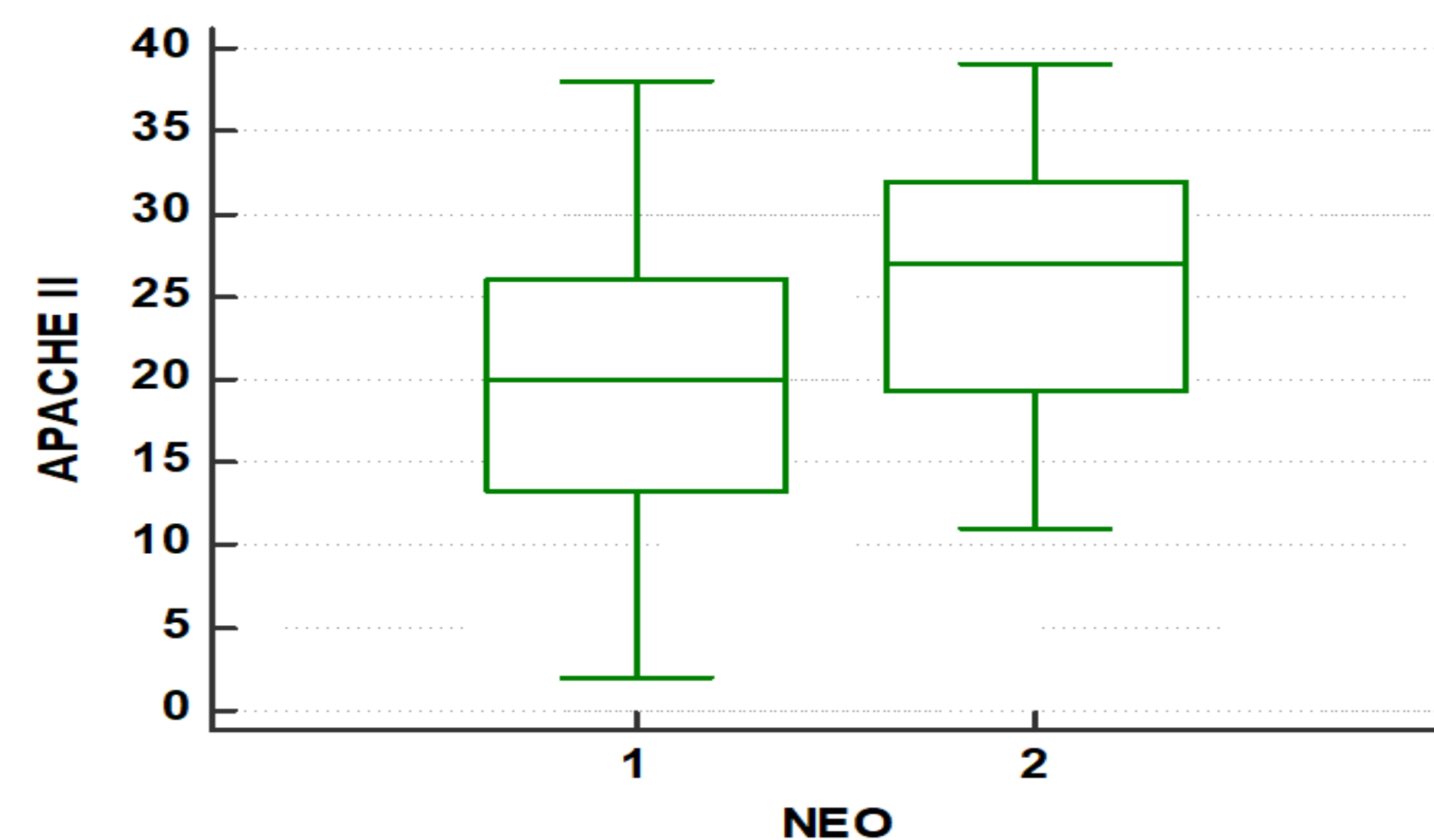
Materials & Methods

Design: We analyzed clinical and lab data of patients admitted to the ICU Department of our hospital during 2020. The main objective of the study was to identify the present risk factors (associated diseases, cytopenias, ongoing chemotherapy) that could influence the evolution of patients with neoplasms. The secondary objectives were the imaging, treatment, and evolution of peculiarities found in patients with severe COVID-19 disease

Patients or Other Participants: The cohort of patients included 46 patients with solid tumors (colon carcinoma, breast tumor, renal and pulmonary carcinoma) and 28 patients with hematological malignancies, including 15 acute leukemia, 6 multiple myeloma, and 7 aggressive lymphoma. All hematological patients have ongoing chemotherapy

Results

- Fatal evolution was observed in 78.3%, 25 patients with hematological malignancies (89,28%) and 29 patients with solid tumors (63,04%) $p=0.005$.
- Patients with solid tumors and associated obesity and diabetes mellitus presented more frequent fatal evolution during ICU hospitalization (obesity Wald value:10.67, $p=0.001$; diabetes mellitus Wald value: 5.02 $p=0.02$. The remaining clinical or hematological parameters were not significant in the overall model fit used in Cox proportional-hazards regression.
- Apache score is predictive for fatal evolution Wald value: 16,37, $p=0,0001$
- APACHE score was higher in hematological patients (group 2) compared with solid tumor patients (group 1) 27 (min 11, max 39) vs 20 (min2, max 38), $p=0,01$.



- In the hematological malignancies cohort, cytopenia and recent chemotherapy were risk factors for fatal evolution.
- Severe pneumonia (more than 50% lung damage) was frequent (84.1%, $p=0.02$).
- The high neutrophil:lymphocyte ratio (NLR), which has significant correlation with interleukin-6, ferritin, and D-dimer levels, was correlated with severe evolution of COVID-19, this parameter could be a predictive factor for severe evolution.

Conclusions

- Patients with solid tumors and COVID-19 who also presented with obesity and/or diabetes mellitus have a more probable severe evolution.
- Patients with hematological malignancies with recent or ongoing chemotherapy and with cytopenia are vulnerable for severe form of COVID-19.
- NLR, ferritin, and D-dimer levels are important parameters that indicate severe evolution of COVID-19.

- Septic soque was present in 20 patients with solid tumors (43,47%) and 12 patients with hematological neoplasia (42,85%). Sepsis influencing survival probability Wald score 5,07, $p=0.02$.
- Thrombosis (pulmonary embolia, stroke, miocardial infarction) was present in 24,3% of patients (13 patients with solid tumor and 5 patients with hematological malignancies). Cox proportional hazards regression did not obtain significant level for this covariate