Parameters that affect the outcome in ICU patients with critical COVID – 19 infection .

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Introduction

COVID - 19 pandemic continues to affect millions worldwide, while the critical form of the disease requires ICU hospitalization to manage not only respiratory failure but multiple organ dysfunctions as well.

Our retrospective observational study aimed to test the hypothesis that there is a difference in mean values of indexes pointing to organ dysfunction on ICU admission day,

like BUN over Creatinine ratio, BUN over Albumin ratio, and PaCO2 over HCO3 ratio among patients with confirmed critical COVID - 19 infection who died and patients who survived ICU.

Methods and Materials

During late 2020 to 2021, 69 patients indicated with the diagnosis of critical COVID - 19 disease admitted to ICU. The patients were separated into two groups. Group A involved all patients who survived ICU and group B all patients who died in ICU.

We looked for statistically significant differences between the medians values of two groups according to BUN/Cr, BUN/Alb, PaCO2/HCO3 ratios on the ICU admission day, performing unpaired t- test or Mann-Whitney Test according to equal S.D.s assumption

Results

Group A / B	Mean	Max	Min	S.D	P value
BUN / Cr	41,3 / 29,4	315 / 58,6	5,18 / 7,41	71,9 / 9,87	0,2440
BUN / Alb	8,93 / 14,2	35,6 / 58,2	2,91 / 4,33	8,1 / 10,06	0,0039
$PaCO_2$ / HCO_3	1,65 / 2,2	2,58 / 4,57	1,3 / 1,13	0,38 / 0,80	0,0085

Conclusions

According to our data, there was a strong statistically significant difference detected between the two groups according to BUN/Alb and PaCO2/HCO3, while the BUN/Cr ratio had no statistically significant difference.

Our data suggest that prerenal disorder took place early and was already present on ICU admission day, although not statistically greater in group B.

However, a renal disorder associated with albumin levels was greater in group B, and acute type II respiratory failure was by far greater in patients that died in the ICU, pointing that oxygenation disorder was not the only impact of COVID - 19 infection on the ICU admission day.