Risk factors associated with requiring invasive mechanical ventilation in patients with SARS-CoV-2 infection: experience in a private hospital in Mexico City.

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Introduction

The clinical presentation of SARS-CoV2 disease ranges from asymptomatic respiratory infection to acute respiratory distress syndrome. Risk factors upon hospital admission associated with the need for invasive mechanical ventilation are not well documented.

In this study we evaluated the relationship between clinical risk factors and inflammation markers associated to the need of invasive mechanical ventilation (IMV) support during hospitalization.

Method

185 hospitalized patients with confirmed COVID-19 (PCR-RT) during March 15 to June 15 2020 were enrolled and classified by the requirement of IMV or not (No-IMV). Comorbidities were recorded. Inflammation markers were requested at the admission.

Results

During our study we found 65 patients (35%) IMV, 120 (65%) No-IMV. The most common clinical features associated with IMV were male sex, age> 65 years, obesity and high blood pressure. (Table 1). Elevated inflammation markers associated to IMV were a D-dimer (> 1000) and troponin (> 1). (Table 2).

Table 1. Clinical features	IMV (65)	No-IMV (120)
Obesity (BMI >30)	17 (26%)	27 (22%)
Diabetes Mellitus	10 (15%)	19 (15%)
High blood pressure	18 (27%)	26 (21%)
Chronic lung disease	1 (1.5%)	6 (5%)
Immunosuppression	2 (3%)	7 (5.8%)
Age >65	39 (60%)	17 (14%)
Male sex	51 (78%)	74 (62%)

Table 2.	IMV (65)	No-IVM (120)
C-reactive protein >200	12 (18%)	29 (24%)
D Dimer >1000	17 (26%)	31 (25%)
Lymphocyte level <1.0 × 10^9	32 (49%)	71 (59%)
Leukocyte level >11.0 x 10^9	8 (12%)	27 (22.5%)
Ferritin >400 (Male) >150 (female)	32 (49%)	72 (60%)
Procalcitonin >0.5	7 (10%)	18 (15%)
Troponin >1	12 (18%)	10 (8.3%)

Conclusion

This study showed the high proportion of obesity, hypertension and advanced age among patients who required IMV associated with SARS-CoV2 infection. The presence of elevated D-dimer and troponin on admission are associated with more severe presentations and requirement for IMV.

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