TITLE: **Gender differences in predictors of intensive care units admission among COVID-19 patients: The results of the SARS-RAS study of the Italian Society of Hypertension**

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Research activity description:

Background:The global rate of intensive care unit (ICU) admission during the COVID-19 pandemic varies within countries and is among the main challenges for health care systems worldwide. Conflicting results have been reported about the response to coronavirus infection and COVID-19 outcomes in men and women. Understanding predictors of intensive care unit admission might be of help for future planning and management of the disease.

Methods and findings: We designed a cross-sectional observational multicenter nationwide survey in Italy to understand gender-related clinical predictors of ICU admission in patients with COVID-19. We analyzed information from 2378 charts of Italian patients certified for COVID-19 admitted in 26 hospitals. Three hundred ninety-five patients (16.6%) required ICU admission due to COVID19 infection, more frequently men (74%), with a higher prevalence of comorbidities (1,78±0,06 vs 1,54±0,03 p<0.05). In multivariable regression model main predictors of admission to ICU are male gender (OR 1,74 95% CI 1,36-2,22 p<0.0001) and presence of obesity (OR 2,88 95% CI 2,03-4,07 p<0.0001), chronic kidney disease (OR: 1,588; 95%, 1,036-2,434 p<0,05) and hypertension (OR: 1,314; 95% 1,039-1,662; p<0,05). In gender specific analysis, obesity, chronic kidney disease and hypertension are associated with higher rate of admission to ICU among men, whereas in women, obesity (OR: 2,564; 95% CI 1,336-4.920 p<0.0001) and heart failure (OR: 1,775 95% CI: 1,030-3,057) are associated with higher rate of ICU admission.

Conclusions: Our study demonstrates that gender is the primary determinant of the disease's severity among COVID-19. Obesity is the condition more often observed among those admitted to ICU within both genders.

Link: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0237297

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