



ABSTRACT

## Obesity is associated with severe Covid-19

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**Background and objectives :** diabetes mellitus, hypertension, and coronary artery disease (CAD) are comorbidities for severe COVID-19. Recently, there has been higher need for admission to intensive care unit (ICU), requiring oxygen support with high flow nasal cannula (HFNC), non-invasive ventilation (NIV), and invasive mechanical ventilation (IMV) amongst COVID-19 patients with obesity. The relationship between obesity and severe dyspnoea in COVID-19 needs more investigation.

**Methods :** This cohort retrospective study includes the first 38 non-obese (with BMI <25 kg/m<sup>2</sup>) and 38 obese (with BMI ≥25 kg/m<sup>2</sup>) patients with COVID-19 admitting to Sentra Medika Cibinong Hospital at May 1<sup>st</sup> until 31<sup>st</sup> 2021. The medical records were followed until patients were discharged. Clinical outcomes of severe COVID-19 included requirement for treatment in ICU, with HFNC, NIV, and IMV. Risk for severe COVID-19 outcomes are presented as odd ratios (OR), and 95% confidence interval (95%CI). All statistical analysis was performed using SPSS.

**Results:** 47.4% patients were male, 52.6% were female, and the most common comorbidities were hypertension (68.4%), diabetes mellitus (51.3%), and CAD (44.7%). Bivariate analysis showed significantly higher OR of severe COVID-19 with obesity (OR: 5.33; 95% CI: 1.69 – 16.81, p<0.001). Multivariate analysis showed increased OR of severe COVID-19 with CAD (OR: 5.02; 95% CI: 1.62 – 20.55, p = 0.025).

**Conclusion :** Obesity increases risk for severe dyspnoea in COVID-19, causes higher need for ICU admission, and HFNC, NIV, and IMV requirement. Diseases associated with obesity, like CAD, also increases risk for severe COVID-19.

**Keywords:** obesity, intensive care, Covid-19

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