

TITLE: RETROSPECTIVE REVIEW OF INTENSIVE CARE UNIT OUTCOMES IN OBESE COVID-19 PATIENTS

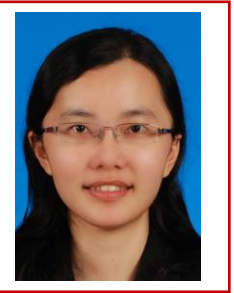
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BACKGROUND

Obesity has been found to be one of the medical conditions associated with worse outcome for Covid-19. There were a substantial number of obese Covid-19 patients admitted to the intensive care unit (ICU) during the Covid-19 pandemic.

OBJECTIVE

To determine the association of obese COVID-19 patients with their ICU outcomes. Primary outcomes included ICU survival at 28 days, ICU length of stay, hospital length of stay and hospital mortality. Secondary outcomes included need for invasive ventilation, non-invasive ventilation, duration of ventilation, need for ARDS therapies (including prone positioning, paralysis), renal replacement therapy.

DESIGN

Single centre retrospective analytical cohort study.

PARTICIPANTS

Adult patients ≥ 18 years old admitted to the COVID-19 ICU Hospital Pulau Pinang from January 2021 to August 2021.

SETTING

Tertiary Hospital

EXPOSURE/VARIABLES

Sociodemographic data, comorbidities, baseline biochemical parameters, ICU intervention and clinical outcome including ICU survival at 28 days.

SAMPLING METHODS

Patients aged < 18 -year-old, who tested negative from RT-PCR test, pregnant ladies, patients with gross ascites, amputation or conditions making BMI measurement unreliable were excluded.

STATISTICAL ANALYSIS

Data were analysed using IBM SPSS version 23. Normal distributed data was analysed using independent t-test, while Mann-Whitney U test was used for non-normally distributed data.

Pearson's chi-square test was performed to determine the association of categorical outcome and obesity groups. Multiple logistic regression and Cox proportional hazards regression was performed to determine the odds ratio and hazard ratio respectively. Kaplan-Meier curve analysis and a log-rank test were performed to estimate survival rate.

With reference to prior data, a minimum sample size of 140 samples per group to be able to reject the null hypothesis with probability (power) 0.8. With an additional of 10% dropout rate, the sample size is 156 samples per group. Hence, expected total sample size required are 312 patients. 429 patients were enrolled in this study; however 4 patient was pregnant, 2 patients under 18 years old, and 36 patients with missing data were excluded. 75 patients record were not traceable. A total of 312 patients' data were collected.

RESULTS

Obesity was present in 169 patients (54.2%) with mean age of 51.4 years and 53.8% (91 patients) male. Mean BMI for obese group was 34.6 while non obese group has mean BMI of 24.1 Obese group were younger with mean age of (51.4 years) and make up the lesser percentage in men (53.8%). Majority of the female, 78 patients (46.2%), are obese. No significant difference in terms of comorbidity index, SOFA score and inflammatory markers. The obese and non-obese groups had 81.7% and 70.6% of patients, respectively, requiring prone position ($p = 0.022$). Kaplan-Meier survival estimates showed no statistically significant difference for both patients group.

DISCUSSION

Obese patients have increase in rate of prone, this could be due to anticipated clinical course of obese patients thus interventions were carried out earlier.

The exact mechanism responsible for disease severity and poor outcome in obese COVID-19 patients may include impairments of immune response, alteration of lung function, cardiometabolic and thrombotic derangement which results in an increased disease severity and worse clinical outcome.

With small number of patients recruited, short duration of study over 8 months and retrospective study nature, the result lack of generalizability to the Malaysia population.

CONCLUSIONS

Obese Covid -19 patient admitted to ICU has increased risk for prone position, no significant difference found in primary and secondary outcomes. This study was unable to establish association between ICU outcomes in obese COVID 19 patients.

ACKNOWLEDGEMENTS

Thanks to my parents.

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