

Category : **Respiratory: ARDS**

**A84 - Body mass index and lactate levels on admission predict icu mortality in elderly critically ill with severe covid-19 pneumonia**

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**Introduction:**

Obesity paradox is an established phenomenon regarding overweight patients treated in ICUs. Mortality of especially elderly patients with COVID-19 pneumonia is high and there is still scarcity of definitive predictors. Aim of our study was to assess the prediction value of Body Mass Index (BMI) on mortality of elderly critically ill with severe COVID-19 pneumonia.

**Methods:**

Data of patients, older than 70years, with severe COVID-19 pneumonia, admitted to 22-bed mixed ICU, level 3, was analysed retrospectively. We especially focused on BMI and lactate levels at admission.

**Results:**

102 patients (average age 77±5 years) were included.. Average length of ICU stay was 11.4±9.2 days. Average BMI was 29.3±5.2 kg/m<sup>2</sup> and lactate levels 2.9±3.2 mmol/l. High-flow oxygenation, non-invasive ventilation and invasive ventilation were at some point used to support 34/102, 36/102 and 69/102 patients respectively. ICU mortality was 51/102 (50.0%). ICU stay was shorter in survivors (9.1±8.5 vs 13.6±9.4 days, p=0.01).

BMI was higher in survivors (30.5±5.6 vs. 28.1±4.5 kg/m<sup>2</sup>, p=0.02); 26/51 (51%) survivors and only 15/51 (29%) non-survivors had BMI≥30kg/m<sup>2</sup> (chi-square p=0.043). At admission BMI (OR 0.9153, 95%CI 0.8610-0.9730, p=0.0045) and lactate levels (OR 1.3492, 95%CI 1.0856-1.676, p=0.0069) were independent predictors of ICU mortality.

**Conclusion:**

BMI and lactate levels at admission are independent predictors of ICU mortality of elderly patients with severe COVID-19 pneumonia. The study confirmed the obesity paradox in elderly critically ill with severe COVID-19 pneumonia.

**Table:**

Variable	All (n=102)	ICU survivors (n=51)	ICU non-survivors (n=51)	p-value
BMI, kg/m <sup>2</sup>	29.3±5.2	30.5±5.6	28.1±4.5	0.020
Lactate at admission, mmol/L	2.9±3.2	2.1±1.6	3.7±4.2	0.012
Logistic regression models	OR	95%CI	p-value	
BMI - univariate	0.9151	0.8623-0.9711	0.01	
Lactate - univariate	1.3033	1.0666-1.5926	0.0096	
BMI - multivariate	0.9153	0.8610-0.9730	0.0045	
Lactate - multivariate	1.3492	1.0856-1.6768	0.0069	

*BMI: Body mass index, CI: Confidence interval, ICU: Intensive care unit, OR: Odds ratio*