Category :**Respiratory: ARDS**

A38 - ***Lactate and lactate-to-pyruvate ratio in critically ill covid-19 patients: a pilot study***

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Introduction:

A limited number of coronavirus disease-19 (COVID-19) cases may require treatment in an intensive care unit (ICU). Arterial blood lactate levels are routinely measured in the ICU to estimate disease severity, predict poor outcomes, and monitor therapeutic handlings. A number of studies suggest that simultaneously with lactate, pyruvate should also be measured, since this might augment prognostic ability, and provide a better understanding of the underlying metabolic alterations in ICU patients. Hence, the aim of the present study was to elucidate the relationship between lactate levels, the lactate-to-puruvate (LP) ratio, and clinical outcome in mechanically ventilated COVID-19 patients.

Methods:

Lactate and pyruvate were serially measured during the first 24 hours of ICU stay. A group of ICU non-COVID-19 patients was additionally studied. The subgroup of COVID-19 patients presenting with elevated lactate was also analysed in an attempt to assess the contribution of hypoxic and non-hypoxic causes of hyperlactatemia.

Results:

The majority of COVID-19 patients (82.5%) had normal lactate and LP ratio on ICU admission. A small, yet significant percentage of patients, who had either elevated lactate levels or a high LP ratio, had a significantly higher risk of ICU mortality (72.7% vs. 34.6%, p=0.04). Finally, high lactate seemed to be related to hypoxic or non-hypoxic causes in COVID-19 patients.

Conclusion:

In our critically ill COVID-19 patients, hyperlactatemia was not only due to tissue hypoperfusion. Furthermore, elevated lactate levels or high LP ratios on admission to the ICU could be associated with poor clinical outcome.