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Lung ultrasound for pregnant women admitted to ICU for COVID-19 pneumonia

COVID-19 can also affect young women during pregnancy.[1] Over the past four weeks, 21 pregnant women who tested positive for COVID-19 were admitted to our tertiary care hospital situated in one of the main epidemic outbreaks in Lombardy, Italy.[2] Most of them remained paucisymptomatic over time, but four patients between 29 and 35 years old (at weeks 21, 25, 33 and 38 of gestation) developed bilateral pneumonia with acute respiratory failure, requiring admission to Intensive Care Unit (ICU). Their initial ratios of partial pressure of arterial oxygen/fraction of inspired oxygen (PaO2/FiO2) ranged between 150 and 220. During their ICU stay, two patients required tracheal intubation and mechanical ventilation, while the other two were supported with non-invasive ventilation via face masks. The patients in their 33rd and 38th week of gestation underwent cesarean section. All the patients recovered from the acute phase of the disease and were discharged from the ICU.

In similar conditions of respiratory failure associated with COVID-19 infection, chest radiography is the most common and frequent tool used to diagnose and monitor the disease. However, minimizing exposure to radiation during pregnancy is considered a very important goal in treatment.[3] Therefore, based on a well-established practice in critical care settings,[4] we used lung ultrasound to obtain bedside lung imaging and monitor lung conditions over time.

Our ultrasound findings (mainly multifocal or coalescent B lines, and sub-pleural consolidations) substantially overlap those recently described for COVID-19 pneumonia investigated with ultrasonography.[4] However, together with standard ultrasound examination, we performed daily assessments of patients' Lung Ultrasound Score (LUS) in six specific areas in each lung (with a total score ranging from 0 to 36).[5] Median values of LUS upon admission to and discharge from ICU were respectively 20.5 and 13.

In our pregnant patients, LUS proved to be a very useful and easily repeatable procedure to complement standard ultrasound imaging. LUS further proved to be a very sensitive and reliable tool in tracking the clinical evolution of patients' respiratory conditions.

We thus suggest the additional use of LUS in routine lung ultrasonography aimed at tracking the evolution of the disease. Moreover, ultrasound coupled with LUS can represent an effective tool to monitor these patients in the obstetric unit, allowing for early detection of deterioration and timely admission to ICU.

Alberto GIANNINI *,
Alessandro MANTOVANI,
Cesare VEZZOLI, Diego FRANCHINI,
Paolo FINAZZI

Unit of Pediatric Anesthesia and Intensive Care, ASST - Spedali Civili of Brescia, Brescia, Italy

*Corresponding author: Alberto Giannini, Unit of Pediatric Anesthesia and Intensive Care, ASST - Spedali Civili of Brescia, Brescia, Italy. E-mail: alberto.giannini@asst-spedalicivili.it

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What are we talking about when we talk of steroid in COVID-19?

I have read the article of Piraccini *et al*. regarding the utilization of (cortico) steroids for pain management in the COVID-19 era.[1] I completely agree that it is important to screen patients to avoid uncontrolled corticosteroids administration in COVID-19 patients that could lead to more harms than benefits. Nonetheless, in consideration of the physiopathological mechanisms leading to severe complication of COVID-19 namely acute respiratory distress syndrome (ARDS). Due to a huge cytokine storm activated by virus infection determining severe lung and systemic inflammation,[2] many studies supported a beneficial role of corticosteroids in COVID-19 patients, above all in those with more severe forms.[3] Thus a moderate immunosuppression seems to modulate the immune response in terms of cytokine production, as confirmed by studies showing that immunosuppressed patients are not under major risk to develop SARS-CoV-2 infection nor more aggressive forms of COVID-19.[4] Further controlled studies are needed to definitely clarify the right dose, the right patient and the right moment during the disease progression when administer corticosteroids to COVID-19 patients.

Finally, I would suggest the use of the term "corticosteroid" and not "steroid" when talking about steroid therapy in COVID-19, since the term "steroid" is not specifically addressed to corticosteroid but to a large class of hormones. The use of the term "steroid" instead of "corticosteroid" is being used with more and more frequency above all among young doctors and, while it is clear that when referring to the term steroid for a patient with asthma we refer to corticosteroid, the return to a correct utilization of a precise medical terminology is greatly advised.

Marco ROSSATO

Department of Medicine (DIMED), Clinica Medica 3, University Hospital of Padua, Padua, Italy

*Corresponding author: Marco Rossato, Department of Medicine (DIMED), Clinica Medica 3, University Hospital of Padua, Via Giustiniani 2, 35128 Padua, Italy.
E-mail: marco.rossato@unipd.it

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Role of corticosteroids in the treatment of COVID-19 infection

We read with interest the comment by Rossato on our letter and we thank the author for his interest in our paper.[1, 2]

The author points out the role of corticosteroids in the treatment of COVID-19 infection and this is a completely different scenario where the correct treatment should be tailored according to the moment of the disease progression and the patient itself.[1]