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Are kidneys targeted by the novel coronavirus?

Kidney involvement seems to be frequent in patients who have tested positive for coronavirus. Acute kidney injury might be a predictor of mortality in infected patients.

ABSTRACT: Kidney involvement seems to be frequent in patients with Covid-19. Proteinuria (and/or blood in urine) often occurs at the beginning or during the infection, a few patients even develop acute kidney injury (AKI). This shows that Covid-19 also attacks the kidneys. Nephrologists from all countries are dedicated and committed to help these patients. Given the involvement of kidneys during coronavirus infection, patients should also be monitored after the disease.

New data on coronavirus disease include some startling revelations: Kidney involvement seems to be frequent in people who have been tested positive and have developed symptoms.

Two studies [1, 2] showed a high rate of renal abnormalities in corona-positive patients: Admitted to hospital, 34% of the 59 patients [1] developed massively elevated levels of albumin in urine (=proteinuria), a symptom of kidney damage 63% of the study patients developed proteinuria while in hospital, and many of them also had blood loss in their urine (hematuria). Kidney function was impaired in 27% of the study population and in 66% of the patients who died from the coronavirus infection. These findings are supported by a second study involving 710 hospitalized patients [1]: On admission, 44% had hematuria and proteinuria (26.7% had hematuria only), and kidney function decreased in nearly 15%.

“This shows that COVID-19 also attacks the kidneys, not just the lungs”, explains Professor Carmine Zoccali, President of the ERA-EDTA. “Although the percentage of overall group of Covid-19 infected patients that develop acute kidney injury (AKI) during infection is rather low (about 3-9%), we have to keep in mind that these patients obviously have a poor prognosis”. Initial studies have concluded that AKI is an independent risk factor for mortality in hospitalized patients with confirmed infection. “These patients should be treated in accordance with best-practice guidelines in nephrology, which includes supportive management as well as dialysis”.

Continuous Renal Replacement Therapy (CRRT) may also be effective in treating patients with Covid-19 and sepsis syndrome (regardless of their kidney function). “All in all, extra-

corporeal therapies may be an 'ultima ratio' in the treatment of severely ill patients, and nephrologists' expertise is needed here. Nephrologists in all countries are ready for action and are dedicated and committed to help in this crisis", says Zoccali.

On the other hand, patients with chronic kidney disease and especially dialysis patients are at high risk because comorbidities increase the risk of dying from Covid-19. "It is therefore of utmost importance that these patients be protected and that infections are prevented. ERA-EDTA is doing all it can to share knowledge and experience on how to handle the situation in dialysis centers, and recommendations from an Italian group were published on the ERA-EDTA website", emphasizes the Association's President.

Another aspect he focuses on is patient aftercare. "Many have already recovered from the disease. AKI patients should be seen regularly by nephrologists, because the risk of these patients developing chronic kidney disease is high. But given the involvement of kidneys during coronavirus infection, we should also monitor those patients who did not develop AKI, but proteinuria and/or hematuria. Otherwise there is a risk that the corona epidemic will be followed by an epidemic of chronic and end-stage kidney disease."

[1] Li Z, Wu M, Guo J et al. Caution on Kidney Dysfunctions of 2019-nCoV Patients. medRxiv preprint doi: <https://doi.org/10.1101/2020.02.08.20021212>

[2] Cheng Y, Luo R, Wang K, et al. Kidney impairment is associated with in-hospital death of COVID-19 patients. doi: <https://doi.org/10.1101/2020.02.18.20023242>

About ERA-EDTA

With more than 7,000 active members, the ERA-EDTA is one of the biggest nephrology associations worldwide leading European nephrology and one of the most important European Medical Associations. It organizes annual congresses and other educational and scientific activities. ERA-EDTA also produces guidelines, collects data, and performs epidemiological studies through its Registry. The Society supports fellowships and educational/research projects through its committees and working groups. Its publications are NDT, CKJ (Open Access journal), and the online educational journal NDT-Educational. The 2020 Congress will be held on 6-9 June in Milan, Italy.

Website: www.era-edta.org