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Focal and segmental glomerulosclerosis associated with COVID-19 infection

Glomerulosclerosis focal y segmentaria asociada a infección por COVID-19

Director:
The COVID-19 infection has caused an impact worldwide to the point of saturating health systems in several countries and being the most frequent and serious reason for consultation in the emergency room. Despite the fact that COVID-19 infection mainly affects the lungs, several studies have identified a high tropism of the virus for the renal parenchyma.¹ The mechanism whereby nephropathy secondary to COVID-19 occurs is uncertain, since the damage may be directly related to viral infection or to kidney injury due to extracellular volume depletion, cytokine release, and activation of the renin angiotensin system.² The most frequent renal lesions at the histological level are: acute tubular injury and collapsing glomerulosclerosis, because the virus could be directly or indirectly toxic in the podocyte.³

It is described the case of a 56-year-old patient with a 25-pack/year smoking history, hypertension, dyslipidemia, and anxiety-depressive syndrome. He attended the outpatient clinic due to nephrotic syndrome of two weeks duration (blood albumin 2.4 g/dL, urine protein/creatinine 10,390 mg/g with urine albumin/creatinine of 7892 mg/g) (Table 1) associated to dry cough and asthenia in the context of mild COVID-19 infection. Primary causes and autoimmune diseases were ruled out (Table 1). The chest and abdominal tomography did not show lesions suggestive of neoplasia or metastasis. Renal biopsy showed unspecified variant focal segmental glomerulosclerosis not otherwise specified (FSGS NOS) (Fig. 1), SARS-CoV-2 polymerase chain reaction (PCR) study in frozen tissue from kidney biopsy was negative. Furthermore, electron microscopy did not reveal COVID-19 viral particles. The temporal sequence of clinical events and negative autoimmune laboratory results made the diagnosis of focal segmental glomerulosclerosis (GFyS) associated with COVID-19, for which treatment with prednisone at 60 mg per day was started. After 12 weeks and given the persistence of proteinuria, cyclosporine 100 mg every 12 h was added gradually increasing to 125 mg every 12 h. Likewise, corticoid dose was progressive decreased to 20 mg per day with a reduction in urine protein/creatinine and urine albumin/creatinine of 903.6 mg/g and 661 mg/g, respectively.

The treatment of FSGS associated to COVID-19 is unknown. Cyclosporine is an immunosuppressant that suppresses inter-
leukin 2 (IL-2) transcription by blocking the activity of calcineurin. At low doses, cyclosporin reduces viral load preventing cytokine storm and maintaining the pH within appropriate ranges which prevents ischemia-reperfusion injury. Also, cyclosporine inhibits viral replication by blocking the cyclophilin functions of the virus and directly inhibiting RNA-nsp12-dependent RNA polymerase.

In a recent study, a cohort of 40 patients with glomerulonephritis and COVID-19 infection has shown that they have a higher rate of mortality and acute kidney injury as compared to the control group. The use of angiotensin converting enzyme inhibitors (ACEI) and/or immunosuppressive treatment do not increase the risk of death and patients with low serum albumin should be monitored. Also, a case of COVID-19 infection has been described in a patient with hypocomplementemic urticarial syndrome and anti-neutrophil cytoplasmic antibody-myeloperoxidase (ANCA-MPO) vasculitis on hemodialysis receiving treatment.
Peritoneal dialysis in an adult patient with myelomeningocele and ventriculoperitoneal shunt*

Diálisis peritoneal en paciente adulto con mielomeningocele y derivación ventriculoperitoneal

Mr. Editor

Peritoneal dialysis (PD) is a method of renal replacement therapy (RRT) used for more than 50 years. It uses the peritoneal membrane to remove solutes, nitrogenous waste products and ultrafiltration. It is considered an easy-to-use therapy, without many complications. Its use is well suited for most patients and some authors consider that PD is the method of choice in the pediatric population.

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