Case Report

DELIRIUM AFTER COVID-19 IN A KIDNEY TRANSPLANT RECIPIENT

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Delirium can manifest as a neurological complication after COVID-19 in immunocompromised patients. To date, several reports have described delirium associated with SARS-COV-2 infection in older patients. Herein we present a case of a younger adult with a kidney transplant, who became disoriented, confused, and restless after acute COVID-19 and was admitted to the psychiatric ward for delirium management. He recovered and had a stable allograft function in follow-up.

Key words: delirium, COVID-19, kidney transplantation

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INTRODUCTION

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the causative agent of coronavirus disease 2019 (COVID-19) pandemic, is still spreading rapidly throughout the world as several countries are dealing with a new wave of new Omicron variant (1). It is known that immunosuppressed patients such as kidney transplant recipients are at a greater risk of COVID-19 infection with high morbidity and mortality. The disease presentation is atypical and data on the post-COVID-19 period in this population are still scarce. In this report, we describe a case of delirium in a kidney transplant recipient post-COVID-19 infection.

CASE REPORT

A case of a 47-year-old man with unknown primary kidney disease is reported. He underwent kidney transplantation in 2006 after two years of hemodialysis. The immunosuppressive protocol included tacrolimus, mycophenolate mofetil, and a steroid. The post-transplant course was complicated by renal allograft artery stenosis that required stent implantation, and new-onset diabetes after transplantation. At the end of March 2021, he received the second dose of the Pfizer vaccine. Two weeks later, he developed persistent fever above 39 °C, with no specific symptoms. The reverse transcriptase-polymerase chain reaction was positive for SARS-CoV-2, and chest x-rays revealed bilateral interstitial COVID-19 pneumonia.

The mycophenolate mofetil dose was decreased, and he was discharged from the hospital one week later in good condition with a stable allograft function. However, one week later, he complained of being uncomfortable and disoriented in space and time at home. He was confused, restless and aggressive. It was necessary to engage police for admission to the psychiatry ward. He claimed to be depressed and was anxious about the outcome of his kidney allograft. Intimidated by his stay at psychiatry ward, he could not relax and was tense. His will, interests, and instincts were diminished. The patient was distracted and often absent but denied any memory problems. After acute delirium, the psychiatrist's conclusion revealed anxiety and depressive disorder of the neurotic level, predominated by repression and denial in defenses, and occasional application of dissociative defense mechanism accompanied by difficulties in adjustment. Computed tomography of the brain was unremarkable except for a zone of sclerosis with a diameter of 7 mm in the area

of the sella turcica. His neurological status was unremarkable, as well as his cerebrospinal fluid findings. Quetiapine was introduced in his therapeutic protocol. Seven days later, his psychiatric status improved, and he was discharged from the hospital.

DISCUSSION

Delirium is a significant mental condition that causes flawed thinking and decreased awareness of the environment. The Confusion Assessment Method (CAM) is widely used as an instrument and diagnostic algorithm to identify delirium. It is based on four cardinal features: 1) acute onset and fluctuating course, 2) inattention, 3) disorganized thinking, and 4) altered level of consciousness. A diagnosis of delirium, according to the CAM, requires the presence of features 1, 2, with either 3 or 4 (2). Ticinesi *et al.* report delirium as a common complication of COVID-19 and a marker of severe disease course, especially in older patients with neuropsychiatric comorbidity (3, 4). In their retrospective analysis, they found that 11% of patients admitted for suspected COVID-19 pneumonia developed delirium during hospitalization. They were mostly older (median age 82 years) and had more neuropsychiatric comorbidities and worse respiratory status at baseline. Older patients are more likely to present with delirium during COVID-19 infection with the occurrence of up to 22% (5), and this was also the case before the SARS-CoV-2 pandemic era, while a large number of patients with delirium have always been diagnosed in acute hospitals (6).

Our patient is relatively young, and additional mechanism can be involved in the pathogenesis of delirium in this case. Kotfis *et al.* report that, indeed, patients with COVID-19 are more likely to develop delirium as a result of direct central nervous system (CNS) invasion, induction of CNS inflammatory mediators, the secondary effect of other organ system failure, the impact of sedative strategies, prolonged mechanical ventilation time, and social isolation to name those (7). Immunosuppression may have had an important role in the development of delirium in our case. It was necessary to exclude opportunistic CNS infections and toxicity of drugs.

The outcome in COVID-19 patients presenting with delirium includes a high mortality rate, and this can be exacerbated by institutionalized measures such as family and social distance and isolation in intensive care units. Garcez *et al.* report that the overall occurrence of delirium was independently associated with in-hospital death reaching up to 55% in COVID-19 patients presenting with delirium compared to 30% in the group without delirium. The length of hospital stay, ventilator utilization, and admission to the Intensive Care Unit also increased in patients with delirium compared to the non presenting group (5, 7, 8). In their multicenter cohort study, Pun *et al.* report that the use of sedatives such as benzodiazepine, mechanical ventilation, use of restraints, opioid administration, vasopressor infusions, and antipsychotics was each associated with a higher risk of delirium. In contrast, family visitation (in person or virtual) was associated with a lower risk of delirium (8, 9). Delirium has also been a significant predictor of acquired dementia after critical illness (9).

CONCLUSION

No cure is yet approved for the management of COVID-19. Supportive therapy and increased herd immunity through vaccination remain the first-line option in fighting the pandemic. Delirium prevention and management should be a priority during the COVID-19 pandemic, thus avoiding long-term neurological complications and decreasing readmission and health care supply consumption. Kidney transplant recipients may be at an increased risk of developing delirium even at a young age.

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S A Ž E T A K

DELIRIJ NAKON AKUTNOG COVID-19 U BOLESNIKA S TRANSPLANTIRANIM BUBREGOM

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Delirij se može manifestirati kao neurološka komplikacija nakon COVID-19 kod imunokompromitiranih bolesnika. Do danas je u nekoliko istraživanja opisan delirij u starijih osoba nakon infekcije COVID-19. Prikazali smo mlađeg bolesnika s presatkom bubrega koji je nakon preboljene infekcije SARS-CoV-2 postao dezorijentiran, zbunjen, nemiran i agresivan te je primljen na psihijatrijski odjel zbog liječenja delirija. Stanje bolesnika se postupno popravilo, a funkcija presatka bubrega ostala je stabilna.

Ključne riječi: delirij, COVID-19, transplantacija bubrega