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Clinical Characteristics of Late-onset Pneumocystis Pneumonia in Kidney Transplantation Recipients : a Single Center Experience

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Background: Pneumocystis pneumonia (PCP) in kidney transplantation (KT) is rare in the immediate posttransplant period thanks to the use of trimethoprim-sulfamethoxazole (TMP-SMX). Late onset PCP is defined as PCP diagnosed more than a year after kidney transplantation. The aim of this study was to investigate recent trends in late onset PCP occurence in kidney transplant recipients (KTRs).

Methods: We included 30 cases of confirmed PCP in KTRs from Jan, 1990 to Mar, 2016. Their clinical features were reviewed retrospectively. The severity of PCP was divided into mild, moderate and severe categories according to PaO2 and alveolar-arterial oxygen gradient (AaDO2) (mild, PaO2 > 70 mmHg or AaDO2 < 35; moderate, PaO2 $\leq$ 70 mmHg or AaDO2 $\geq$ 35; severe, PaO2 < 60 mmHg or AaDO2 $\geq$ 45).

Results: A total of 30 cases were confirmed as PCP and of these 25 cases were late onset PCP. The cumulative incidence of PCP was 0.014% (30/2151). The mean duration between kidney transplantation and diagnosis of late onset PCP was 66.2 ± 56.3 months. All patients underwent TMP-SMX prophylaxis for 6 months after KT without complication. The incidence of confirmed PCP showed an increase year-by-year (40% before 2013; 60% after 2014). However, no significant parameters were observed. In most patients, immunosuppressive agents consisted of prednisone (88%), calcineurin inhibitor (tacrolimus or cyclosporine; 88%) and mycophenolate mofetil (76%). The incidence of acute rejection and chronic rejection was 40% (n=10) and 16% (n=4), respectively. Rituximab was administered in 32% (n=8) for desensitization therapy before KT and for treatment of chronic rejection. The incidence of severe PCP was 80% (n=20) and the severity was associated with donor type (p=0.046). The survival rate of patients was 80% (n=20).

Conclusion: The incidence of confirmed PCP is on the rise in the past few years. The recently increased application of strong immunosuppressant is a possible cause of the increased incidence of PCP. We recommend the use of TMP-SMX prophylaxis for an extended period of time as a possible strategy to reduce the incidence of late onset PCP.

Keywords: Kidney transplantation, pneumocystis pneumonia