Commentary

Posttransplant Lymphoproliferative Disorders in Kidney Transplant Patients

Central Nervous System Involvement

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Kidney transplant recipients, are commonly predisposed to development of malignancies, partly due to the long-term use of immunosuppressive agents for prevention of allograft rejection, especially skin cancers and posttransplant lymphoproliferative disorder (PTLD).[1,2] However, the prevalence rate and types of malignancies vary between geographical areas.[2] Kaposi sarcoma is the most common cancer to occur after kidney transplantation in the Middle East countries.[2,3] In our previous studies, Kaposi sarcoma was the first malignancy among kidney transplant patients, followed by PTLD.[1-7]

Posttransplant lymphoproliferative disorder is considered one of the most frequent tumors and potentially fatal complications after kidney transplantation, accounting for 24% of all posttransplant malignancies, and results in mortality in up to 51% of patients.[4] The incidence of PTLD following kidney transplantation is lower than that in patients with heart, lung, and liver transplant organs. However, the risk of developing PTLD among kidney transplant patients is 10 times greater than that in the general population.[4] The incidence of PTLD seems to be more likely correlated with the intensity of immunosuppression regimen.[8] In the current issue of the *Iranian Journal of Kidney Diseases*, Jenabi and associates report late PTLD in a young woman presented by a rare form of the disease as multiple cranial masses and unilateral facial palsy.[9] She died as early as 6 months after the diagnosis due to pneumonia and sepsis, which resembles to other studies reporting sepsis as the main cause of mortality in these patients.[4,6]

The localization of PTLD has an important effect on patient survival; it is important to note that involvement of the brain in PTLD is associated with the worst outcome.[6,10,11] The central nervous system localization of lymphoma is an uncommon but fatal form of PTLD, representing 16% of our PTLD transplant patients with poor prognosis,[4] which is consistent with the Opelz and Henderson's report.[12] In previous studies, young age was significantly associated with risk of PTLD[4,13]; interestingly the reported case by Jenabi et al was a 30-year-old patient. Nonetheless, some other reports indicate a higher incidence of PTLD in older transplant patients.[6,10,14,15] The median age of a small series of central nervous system PTLD was 43 years,[16] and the mean age of our kidney recipients with central nervous system involvement was 44 ± 11 years.[4]

There is a bimodal or ''U-shaped'' pattern for the onset of PTLD, early-onset PTLD (ie, within the first 2 years after transplantation) and late-onset PTLD (more than 2 years after transplantation), with a high incidence immediately after transplantation, declining until 2 to 4 years since transplantation, and increasing again thereafter.[13] In our study, the late-onset PTLD (71%) was more commonly seen compared to the early-onset type.[4] The reported case by Jenabi and coworkers had a late-onset PTLD.[9] Late-onset PTLD is more likely than early-onset PTLD to be extranodal,[4,13] likewise the reported case.[9] In a series of 12 primary central nervous system PTLD, male gender was predominant (male-female ratio of 5:1)[16]; moreover, male gender is associated with late-onset PTLD risk,[13] but the reported case is female.[9] She had a diffuse large B-cell plasmablastic differentiated lymphoma form of PTLD.[9] It is interesting to note that late-onset PTLD is predominantly of B-cell origin (64% B cell versus 10% T cell, 26% unknown).[13] In addition, the central nervous system PTLD is usually aggressive, large cell lymphomas, predominantly with a B-cell phenotype.[16] In one study, early-onset PTLD had a favorable outcome in most of the cases and late-onset PTLD had a poor prognosis.[17] Since most

central nervous system PTLDs are aggressive B-cell lymphomas, the prognosis of central nervous system PTLD is dismal,[16] similar to the reported case who died 6 months after diagnosis.[9]

Genetic susceptibility and correlation of PTLD with some human leukocyte antigens (HLAs) has been described.[18] Several associations of HLA-B18, HLA-B21, and HLA-BW22 with PTLD have been demonstrated; however, the role of genetic factors in the development of PTLD remains uncertain.[18]

No consensus exists for the optimal treatment of PTLD; however, the first step in the most studies is prompt reduction or discontinuation of immunosuppression.[4,19,20] Sirolimus, an mTOR inhibitor, is a safe alternative to calcineurin-based immunosuppression in patients who develop PTLD, and it may lead to promising results and prevention of allograft rejection after changing the immunosuppression. If reduction or discontinuation of immunosuppression fails to control the disease, chemotherapy, surgery and radiotherapy, antiviral therapy, and cell-based therapies are other therapeutic measures. Epstein-Barr virus-related PTLD may also vanish following reduction or discontinuation of immunosuppression.[19] In addition, immunosuppression reduction or discontinuation either alone and combined with surgical excision is an effective treatment option for localized PTLD.[19] However, a reduction in immunosuppressive therapy is not effective for central nervous system PTLD. Patients with central nervous system involvement should be treated with intrathecal chemotherapy, because intravenous chemotherapy and monoclonal antibodies do not adequately cross the blood-brain barrier. Radiotherapy of the involved field may be useful for those with central nervous system disease.[19,20] Furthermore, chemotherapy is the next treatment option, such as cyclophosphamide, doxoribicin, vincristine, and prednisone (CHOP) regimen. It has been revealed that this regimen can result in the remission rates of 69% in patients with B-cell tumors.[19,21,22] Similarly, Trappe and colleagues showed that the response rate after CHOP administration in cases with refractory or relapsed disease after rituximab therapy was 70%.[23] In the reported case by Jenabi and coworkers,[9] immunosuppressive drugs were withdrawn and the patient received 5 courses of CHOP chemotherapy. Interestingly, significant shrinkage of the right skull base mass and disappearance of all other cranial lesions were observed after 1 month, but she died due to development of sepsis. In all patients who have received antithymocyte globulin prophylactic antiviral therapy should be started.[4]

Finally, PTLD in recipients with central nervous system involvement is usually high-grade lymphomas with poor prognosis. Therefore, early detection and proper treatment may result in improved survival in the kidney transplant patient population.

CONFLICT OF INTEREST

None declared.

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Actinobaculum Schaalii as a Uropathogen in Immunocompromised Hosts

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After kidney transplantation, the rate of infections will increase, and unusual organisms and rare infections can be seen with increased incidence such as fungal infections.[1] It is known that mortality of these infections is higher in kidney transplant recipients than in the general population.[2] Urinary tract infection (UTI) is the most common infection after kidney transplant, and it is of interest that its etiology, clinical presentation, and prognosis will change.[3] Although viruses are among the most common causes of opportunistic infections after transplantation, rare and life-threatening infections are the most important.[4]

In 1997, Lawson and colleagues reported *Actinobaculum* as a new genus of *Actinomyces suis* and called the human strains as *Actinobaculum schaalii*.[5] In 2003, Greub and Fendukly added *A urinale* (isolated from the urine of 2 patients with UTI) and *A massiliae* (isolated from the urine of a patient with UTI and from the pus of a superficial skin infection) to this genus.[6,7] *Actinobaculum* species are gram-positive, straight to slightly curved, nonmotile, facultatively anaerobic coccoid rods. They grow well after 48 hours at 37°C in an anaerobic atmosphere as circular grey colonies. They are catalase, urease, and oxidase negative, have been isolated from urine, blood, and pus, and predominantly cause UTI and also abscess, osteomyelitis, bacteremia, and superficial skin infections.[8-11]

It appears that *Actinobaculum* infection happens only in patients with underlying urological pathologic disorders or immunodeficient patients. It seems that the prevalence of *Actinobaculum* species