

**Post-transplant lymphoproliferative disorders after kidney transplantation**

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Because of recent advances in immunosuppressive agents, the rate of acute rejection has been suppressed, and we could receive good short-term patient and graft survival rates. On the other hand, the long-term survival rate remains unchanged, primarily due to an increased rate of death with functioning grafts, including malignancies, cardiovascular diseases, and infections after kidney transplantation. In solid organ transplantation, post-transplant lymphoproliferative disorder (PTLD) is a potentially life-threatening complication that occurs in up to 20% of transplanted patients in the setting of immunosuppression and oncogenic viral infections after transplant surgery. Moreover, PTLD is the second most common malignancy after skin cancer and occurs in 1–3% of adult kidney transplant recipients, associated with poor survival after diagnosis. Using data from a large Japanese cohort, we have previously reported that the most frequently detected cancer types after kidney transplantation were PTLD (13.3%), followed by skin cancer (11.5%), breast cancer (10.0%), and renal cell carcinoma (10.0%).

Epstein-Barr virus (EBV) is the most strongly implicated risk factor for PTLD that can come from primary or latent EBV infection. Immunosuppressant therapy is strongly associated with reducing CD8+ T cells responsible for protective cytotoxic immunity to many viruses. This results in an imbalance in EBV-positive B cells, EBV-specific cytotoxic T cells, and regulatory T cells, leading to the proliferation of EBV-positive B cells and the development of PTLD. For early-onset PTLD, young age and EBV seronegativity are significantly associated with the etiologic role of primary EBV infection, whereas late-onset PTLD is likely associated with older age. This is consistent with lymphoma patterns observed in the general population.

Given that the number of transplant recipients with older age is expected to continue to increase, the incidence of PTLD will need to be closely monitored. In fact, PTLD sometimes progresses rapidly, and diagnosis is often delayed. We routinely perform cancer screening every year for almost all post-transplant recipients. But unfortunately, we could not detect all PTLD through cancer screening because of rapid growth or various reasons, leading to a worse prognosis in those not detected until they developed symptoms.

Here, we will share real-world data based on ours, along with a literature review.