Organ Toxicity by Immunosuppressive Drugs in Solid Organ Transplantation

Abstract

Solid organ transplantation is the preferred therapeutic option that confers significant survival advantage on patients suffering from end-organ dysfunction and provides improved quality of life together with its cost-effectiveness. During perioperative and post-transplant periods, organ transplant recipients receive immunosuppressive therapy, which reduces the high risk of allograft rejection, minimizes infections, improves allograft quality, and prolongs recipient survival. While there is no optimal immunosuppressive protocol in solid organ transplantation across transplant centers, some centers have adopted a triple combination therapy consisting of a calcineurin inhibitor, a purine synthesis inhibitor, and glucocorticoid. Other centers have also used dual therapy comprising inhibitors of mammalian target of rapamycin and belatacept to achieve the goal of immunosuppression. However, chronic immunosuppression is associated with post-transplant complications including organ toxicity, resulting in significant mortality of transplant recipients and hindering long-term success of organ transplantation. This chapter discusses organ toxicity induced by commonly used immunosuppressive drugs in solid organ transplantation and strategies to reduce the burden of immunosuppression after solid organ transplantation.