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The effect of Induction Therapy in Kidney Transplantation: A Network Meta-Analysis using recent data

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Objectives: Rejection can occur after kidney transplantation and are important factors in preserving graft kidney function. The use of immunosuppressant agents in transplantation is therefore important, and the question of which induction therapy should be used as an immunosuppressant is controversial.

Methods: The goal of this study was to assess the comparative benefits and harms of various maintenance immunosuppressive induction agents in adults undergoing kidney transplantation by using a network meta-analysis and to generate rankings of the different immunosuppressive regimens according to their safety and efficacy. CENTRAL, MEDLINE, EMBASE, Science Citation Index Expanded, World Health Organization International Clinical Trials Registry Platform, and trial registers were searched until June 2022 to identify randomized controlled trials on immunosuppression for kidney transplantation

Results: Forty-two studies involving 8367 participants were eligible for analysis. Induction and maintenance treatments were administered for 12 months . There was no evidence of differences in outcomes between therapies on all-cause mortality, graft loss, incidence of cytomegalovirus, neutropenia and thrombocytopenia. However, compared with intravenous basiliximab (an interleukin-2 receptor antagonist [IL-2RA]), the most effective treatments to decrease biopsy-proven acute rejection were intravenous alemtuzumab The odds ratios were 0.58 (95% credible interval [CrI], 0.23-14.78). Among infection, Incidence of Bk virus increase to occur when induction therapy use rabbit antithymocyte globulin (rATG) 1.78(95% CrI, 1.34-3.89).

Conclusions: The determination of induction in kidney transplantation is important for future prognosis of the graft kidney. Alemtuzumab exhibited lower biopsy-proven acute rejection than the IL-2RA. As a side effect, rATG produced frequent BK virus infection.