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Long-Term Humoral Sensitization after Kidney Allograft Failure: Rethinking the Goal of Post-Failure Immunosuppression

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Objectives : Prolonged immunosuppression after kidney allograft failure is maintained to prevent humoral sensitization and preserve access to retransplantation, but long-term outcomes are not well characterized.
Methods : We conducted a single-center retrospective cohort study of 23 kidney transplant recipients with allograft failure and ≥12 months of post-failure follow-up. Anti–HLA antibodies were measured using single-antigen bead (SAB) assays, and cPRA was calculated. Sensitization statuses were assessed at graft failure, at an intermediate time point (closest to withdrawal of immunosuppression), and at last follow-up. The total duration of post-failure immunosuppression, including calcineurin inhibitor (CNI) and steroid exposure, was recorded. Time-to-event analyses were performed in patients nonsensitized at graft failure.
Results : Median age at graft failure was 45 years and median graft survival was 8.3 years. Sensitization was present in 52% of patients at graft failure, 70% at the intermediate assessment, and 87% at last follow-up; two of the three nonsensitized patients had only 12 months of follow-up. Among 11 patients nonsensitized at graft failure, 8 (73%) developed sensitization during follow-up (median time to sensitization, 13 months). In time-to-event analyses restricted to initially nonsensitized patients, neither total post-failure immunosuppression duration nor steroid exposure was clearly associated with a lower risk of sensitization.
Conclusions : In this cohort, sensitization after kidney allograft failure was common, progressive, and only modestly influenced by continued immunosuppression. Most patients reached high cPRA levels, arguing against indefinite immunosuppression solely to prevent sensitization and supporting a time-limited, individualized approach focused on preventing graft intolerance syndrome and minimizing long-term immunosuppressive toxicity.