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Impact of Recipient Age in Repeat Kidney Transplantation: A National Comparative Analysis

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Objectives : While kidney transplantation (KT) offers survival benefits compared to dialysis, older recipients experience reduced patient and graft survival. However, the age-related immune system changes may decrease the risk of rejection. We hypothesized that immunological challenges associated with re-transplantation might be mitigated in elderly recipients due to immunosenescence.
Methods : In the Korean Organ Transplantation Registry (KOTRY) database, a total of 11,681 KTs were performed between April 2014 and December 2023. Of these, 794 patients who underwent more than one KT were included in the study. The patients were divided into two groups based on the recipient's age at the time of KT: young (<65 years, n=751) and elderly (≥65 years, n=43). Allograft outcomes and complications were compared between the two groups.
Results : The median follow-up period was 60.2 months (IQR 33.5-89.0). The two groups had similar immunologic risk, leading to no differences in desensitization or induction regimens. Biopsy-proven rejection free survival were similar between the groups (log-rank p=0.208). Death-censored graft survival showed no significant difference between the two groups (log-rank p=0.208). Specifically, the most common cause of graft loss in young recipients was rejection (10/32 cases), whereas no cases of graft loss due to rejection were observed in elderly recipients. Early period infection-related hospitalizations (3.9% vs. 9.3%, p=0.097), malignancies and cardiovascular events occurred more frequently among elderly recipients. Elderly recipients had a significantly higher mortality risk compared to young recipients (log-rank p=0.002). While infection and malignancy were the leading cause of death in young recipients, infection and cardiovascular disease were predominant in elderly recipients.
Conclusions : Although elderly recipients are at higher risk of infection-related and cardiovascular complications, repeat KT in this population remains a viable option when managed cautiously to minimize over-immunosuppression, given their comparable rejection rates.