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Impact of delayed graft function on highly sensitized patients in deceased donor kidney transplantation

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Objectives: Delayed graft function (DGF) has significant impact on the short term and long term allograft outcomes after kidney transplantation. However, the impact of DGF on highly sensitized patients in deceased donor kidney transplantation has not been investigated yet.

Methods: We analyzed 655 deceased donor kidney transplantation recipients from October 2005 to December 2018 at Seoul St. Mary's Hospital and Dongsan Medical Center. DGF was defined by the need for dialysis within 2 weeks after KT. Highly sensitized patients were defined as PRA greater than 50%. Of 534 patients with PRA below 50%, 437 patients were low PRA without DGF group, 97 patients were low PRA with DGF group. Of 121 patients were highly sensitized patients, 96 patients were high PRA without DGF group, 25 patients were high PRA with DGF group. The primary outcome was death-censored graft loss rate and the secondary outcomes were biopsy proven acute rejection (BPAR), change of allograft function, and patient mortality.

Results: In the Kaplan-Meier analysis, death-censored graft loss rate tended to be higher when DGF developed but was not significant. In highly sensitized group, multivariate analysis showed death-censored graft loss rate was statistically higher when DGF developed ($P=0.027$). The Hazard ratio was 4.832 (1.197-19.496). BPARs were identified as 14.6% (low PRA without DGF), 20.6% (low PRA with DGF), 21.9% (high PRA without DGF), and 32.0% (high PRA with DGF), respectively. The change of allograft function was statistically different until 1 month after KT based on the development of DGF, regardless of the degree of sensitization. Patient mortality showed no statistical difference among the four groups.

Conclusions: The development of DGF in highly sensitized patients may be associated with a higher death-censored graft loss rate, BPAR, and lower allograft function. However, patient mortality may not be different according to the development of DGF or the degree of sensitization.