**Summary**

Immunosuppressive (IS) drugs have reduced acute rejections in kidney transplant (KTx) patients; however, their prolonged usage being deleterious impairs long-term allograft survival. Newer immunotherapy regimens have indicated application of immunomodulatory bone marrow-derived-mesenchymal stromal cells (BM-MSCs) to prolong graft survival. This study was designed to investigate immunological effects of BM-MSCs derived from patients (auto-MSCs) or respective kidney-donors (allo-MSCs).

For this study, 17 KTx patients meeting the inclusion criteria were divided into 3 groups i.e. group 1- auto (n=6), group 2- allo (n=6) and group 3- control (n=5). Auto-MSCs or allo-MSCs were given one-day pre-transplant (D-0) and 30-days post-transplant (D-30) at a dose of $1.0-1.5 \times 10^6$ BM-MSCs/kg body weight. Subjects were followed-up for 2 years and 30 lymphocyte subsets, 8 cytokines and 2 biomarkers were analysed at multiple time-points. One patient each from auto and allo group was lost to follow-up, therefore were excluded from analysis.

Flow cytometric analysis revealed increase in B-regulatory ($B_{\text{REGS}}$) and non-conventional T-regulatory cells with a decrease in T-effector ($T_{\text{EFF}}$) cells in auto group patients while in allo group, decrease in $T_{\text{EFF}}$, $B_{\text{REGS}}$ and increase in FoxP3$^{\text{ve}}$ T cells was observed. The alterations in lymphocyte populations corresponded to cytokine profile of recruited patients. This is the first report to compare the effect of two time-point auto-MSCs and allo-MSCs infusion which proves that both auto-MSCs and allo-MSCs are safe and well-tolerated, however, auto-MSCs have more pronounced effect. Importantly, our data demonstrated that addition of auto-MSCs to IS regime might prove beneficial as they induce lymphocytes, known to support allograft function.