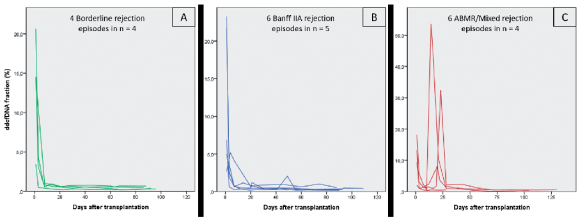
Fourteen (13.1%) recipients developed one or two AR episodes. Plasma ddcfDNA kinetics from 13 recipients with samples available before rejection treatment are shown in Figure 1. Four recipients developed an episode of a treated borderline rejection (Fig. 1A) on surveillance or indication biopsy with median ddcfDNA fractions of 0.42% (0.31%-0.56%) at time of rejection. Six Banff IIA rejection episodes were identified in five recipients. Levels of ddcfDNA were increased during two Banff IIA episodes (Fig. 1B). In one recipient, plasma ddcfDNA increased up to 1.19% while levels increased to 5.17% in another recipient with a Banff IIA rejection episode already four days after transplantation. Six episodes of antibody-mediated rejection (ABMR) or mixed cellular AR and ABMR were identified in four recipients (Fig. 1C). Increased ddcfDNA fractions were observed during four out of these six episodes with median ddcfDNA fractions of 20.29% (1.43%-53.64%).

CONCLUSIONS: Within 3 weeks after transplantation, plasma ddcfDNA fractions decrease to a stable baseline level. In recipients with an AR, increased levels of ddcfDNA seem phenotype dependent as higher levels are observed during an acute ABMR or a mixed cellular AR and ABMR episode compared to Borderline or Banff IIA rejection episodes.



FP695

PLASMA DONOR-DERIVED CELL-FREE DNA KINETICS IN STABLE RENAL TRANSPLANT RECIPIENTS AND RECIPIENTS WITH AN ACUTE REJECTION

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INTRODUCTION AND AIMS: After transplantation, cell-free DNA derived from the donor organ (ddcfDNA) can be detected in the recipient's circulation. We aimed to investigate plasma ddcfDNA levels in renal transplant recipients with a stable graft function after transplantation and transplant recipients with an acute rejection (AR) episode.

METHODS: Plasma samples were collected longitudinally from day 1 until 3 months after transplantation from 107 renal transplant recipients within a multicenter set-up. Renal surveillance and indication biopsies were histologically evaluated by a single pathologist according to the Banff classification. Cell-free DNA from the donor was quantified in plasma by next generation sequencing as a fraction of total cell-free DNA using a targeted, multiplex PCR based method for the analysis of donor-specific SNPs. For the current analysis, recipients with an AR episode and stable renal transplant recipients without acute kidney injury on all study follow-up visits and without fluctuations in plasma ddcfDNA fractions were selected.

RESULTS: Forty-two (39.3%) subjects were categorized as stable renal transplant recipients. Within this group, median baseline plasma ddcfDNA levels of 0.49% (0.14%-0.96%) were reached approximately three weeks after transplantation.