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ORIGINAL ARTICLE

# Alkaline phosphatase to treat ischaemia–reperfusion injury in living-donor kidney transplantation: APhIRI I feasibility pilot study

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**Aims:** Ischemia-reperfusion injury (IRI) during kidney transplant procedures is associated with adverse outcome. Alkaline phosphatase (AP) is an enzyme that has the potential to dampen IRI. Prior to this study, it had not been tested in the setting of kidney transplantation. This study aimed to evaluate the safety and feasibility of peri-procedural AP administration in living donor kidney transplantation.
**Methods:** In this double blind, randomized, placebo-controlled, single-center pilot study, all eligible recipients of living donor kidneys were asked to give informed consent. AP (bRESCAP) or a placebo was administered intravenously over 24 hours after the transplantation procedure. The primary outcome—graft function at 1 year—was represented by iohexol measured glomerular filtration rate (mGFR). Serum and urine biomarkers within seven days after surgery were used as surrogate markers of kidney function and injury.
**Results:** Eleven patients were enrolled of whom five were treated with bRESCAP and six with placebo. After 1 year, mGFR was not different between groups. No specific adverse events were observed in the bRESCAP group. Urine expression of injury biomarkers CCL14, NGAL and Cystatin C was lower in the bRESCAP group at day seven. This was statistically significant.
**Conclusion:** This study illustrates that bRESCAP treatment is feasible in kidney transplantation, might have a dampening effect on IRI induced renal inflammation, and raises no safety concerns. Future research will evaluate the effects of bRESCAP