HLA matching, *de novo* DSA formation, and graft outcomes in pediatric living-related versus living-unrelated kidney transplantation

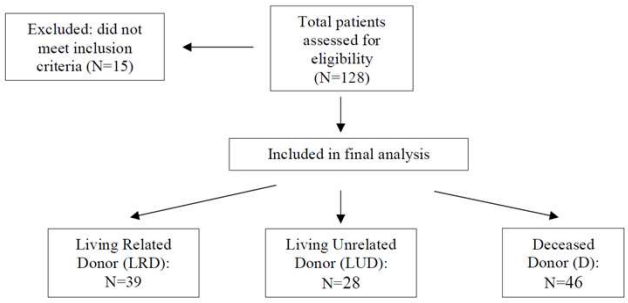
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AIM

- With Israel recognized as a global leader in altruistic living kidney donation, understanding the immunological and clinical implications of this donor source is essential.
- This study evaluated the impact of donor relationship — living related (LRD) versus living unrelated (LUD) — on HLA compatibility, de novo donor-specific antibody (DSA) development, graft function, and graft survival in a pediatric cohort. Deceased donors were included as an additional comparator.

KEY FINDING: Living-related donors had better HLA matching, but living-unrelated donation was not associated with higher DSA rates, worse graft function, or inferior 5-year graft survival.

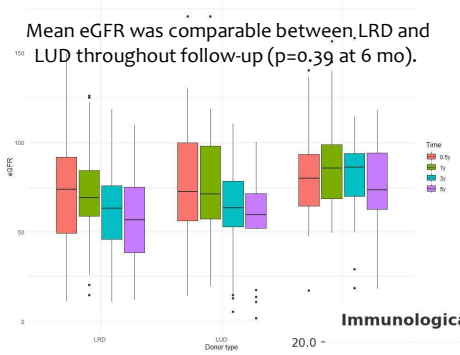


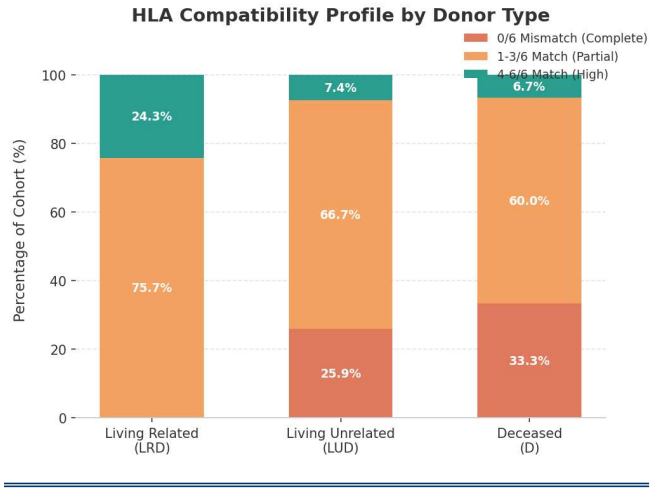
MATERIALS & METHODS

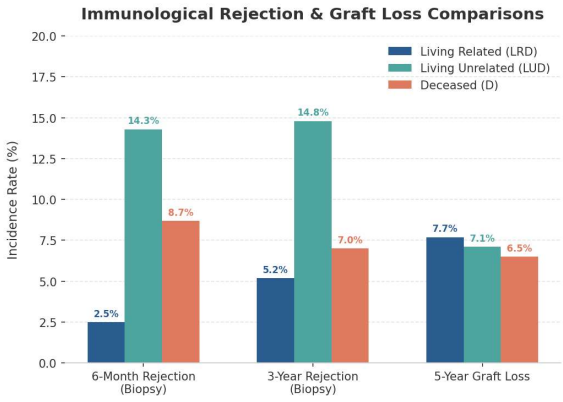
- ✓ **Retrospective cohort study of 113 children** (ages 2–21 years) undergoing first kidney transplantation at Schneider Children's Medical Center, Israel (2002–2021), classified as LRD (n=39), LUD (n=28), or deceased donor (n=46).
- ✓ **HLA matching** was assessed by broad antigen typing (6-antigen).
- ✓ **DSA monitoring** used Luminex-based assays (mean fluorescence intensity, MFI, ≥1500 defining positivity) at 6 months, 1, 3, and 5 years.
- ✓ **Additional outcomes** included estimated glomerular filtration rate (eGFR), proteinuria, biopsy-proven rejection, and graft loss. Kaplan–Meier and Cox regression analyses evaluated graft survival.

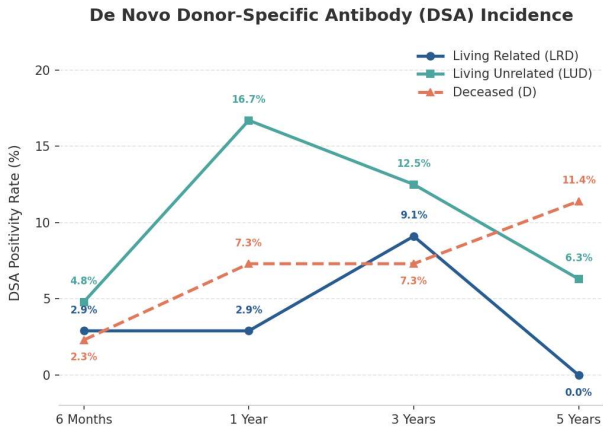
RESULTS

- HLA matching was significantly superior in the LRD group (p<0.001).
- Despite this, DSA development showed no significant between-group differences at any time point.
- Mean eGFR was comparable between LRD and LUD throughout follow-up.
- Five-year graft loss rates were similar, and multivariable Cox analysis confirmed no significant association between donor type and graft loss risk.









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Disclosure of Interest: None

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Conclusion

Despite a clear HLA matching advantage for LRD, the immunological disadvantage of LUD does not translate into higher DSA rates, inferior graft function, or compromised graft survival in children.

These findings support altruistic living donation as a safe and effective strategy to expand the pediatric donor pool and reduce transplant waiting times.