

Donor-Recipient Age Difference as a Predictor of eGFR in HLA-A, HLA-B, HLA-DR Mismatch Renal Transplant Recipients in a Tertiary Care Teaching Hospital

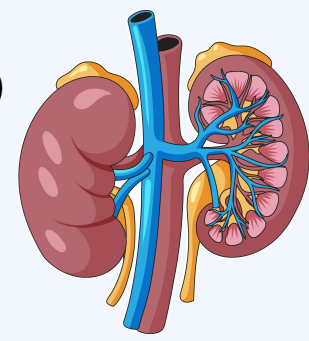
Shubhi Shrivastava [1], Rakshit Karwasara [1], Aman Singh [1], Rijul Agrawal [1], Shivangi Sharma [1], Sanskar S Ratnawat [1], Shweta Sharma [2], Suraj Godara [3], Shyam Swaroop [2], Ram Mohan Jaiswal* [2]

1. MBBS Students, MGMC&H, 2. Department of Immunohaematology and Blood Transfusion, 3. Department of Nephrology (*Corresponding Author: drmjaiswal@mgumst.org)

INTRODUCTION

Background:

- End-Stage Renal Disease (ESRD) → Major health challenge
- Renal transplantation → Better outcome than dialysis



Objectives:

- To evaluate the impact of donor-recipient age difference on post-transplant eGFR
- To assess the effect of HLA-A, HLA-B, and HLA-DR mismatches on graft outcomes

MATERIALS & METHODS

Study Design:
Retrospective Case-Control Study

Setting: NW INDIA
MGMCH

Data collection:

- Medical records reviewed
- Clinical + Laboratory parameters

Genotyping

- HLA Class I and II polymorphisms
- NGR + PCR-SSP (Next Generation Sequencing and PCR-Specific Primers)

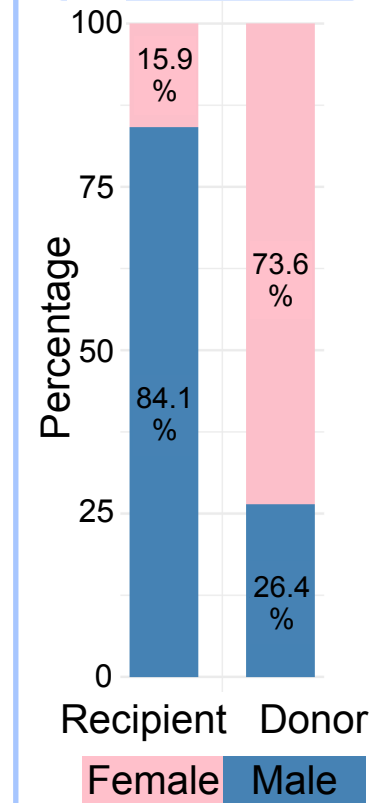
Duration:
March 2019 → August 2024

Sample Size:
203 patients

Population:
Patients with ESRD undergoing renal transplantation

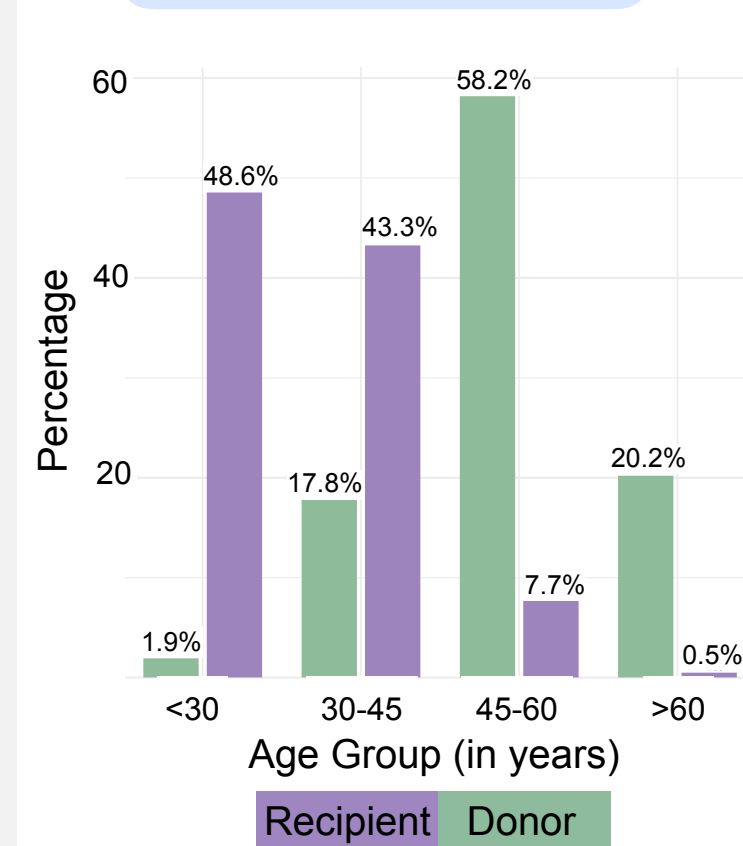
RESULTS

I. Gender Distributions



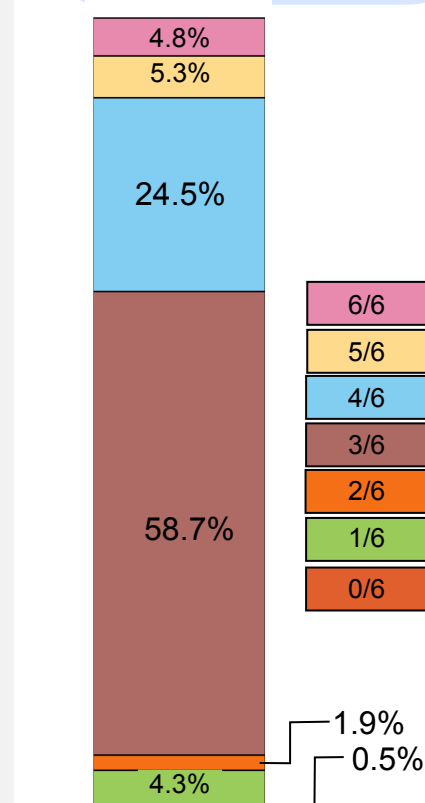
Predominantly male recipients and female donors

II. Age Distributions



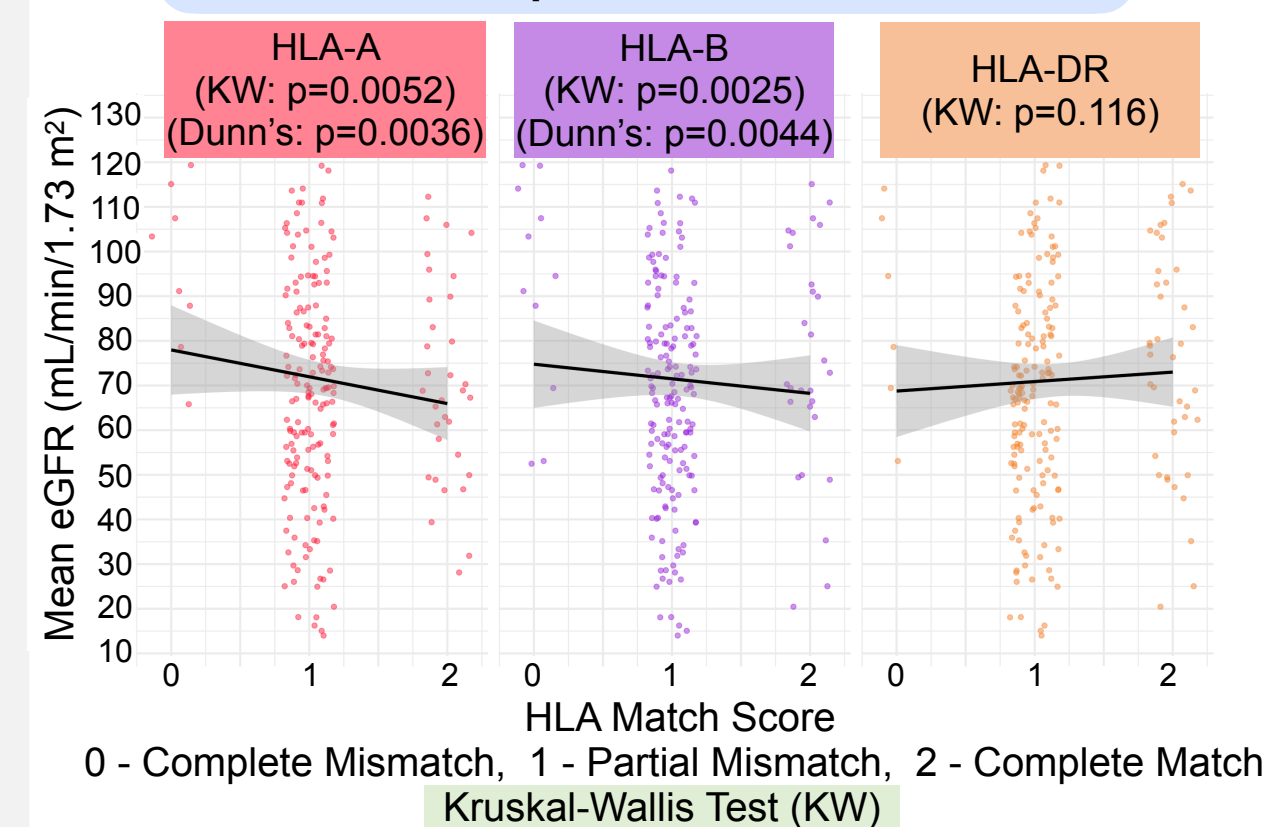
More than 90% recipients are <45 years of age, whereas around 80% donors are >45 years of age

III. Degree of HLA Match



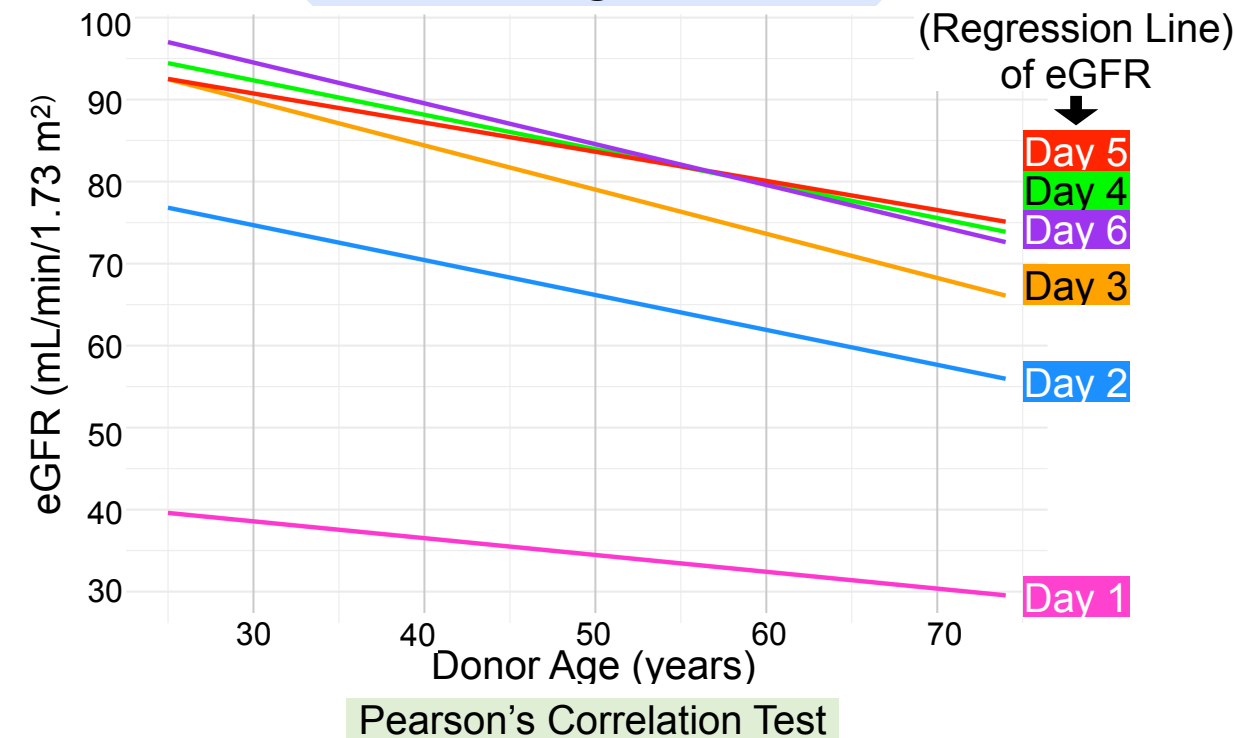
58% transplants are done with 3/6 HLA matching

IV. HLA Match per Locus vs mean eGFR



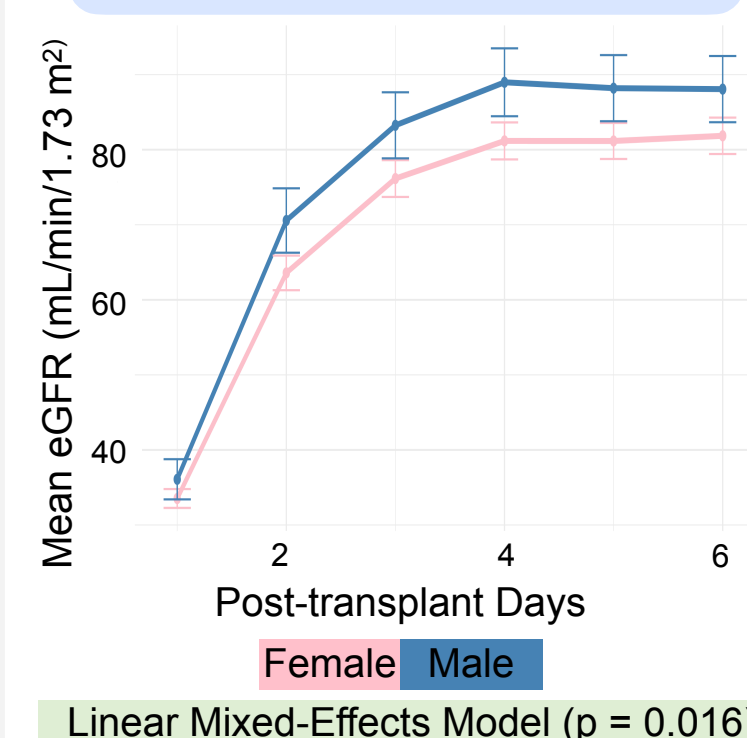
Lower degrees of HLA-A & -B matching were significantly associated with higher early mean eGFR (p<0.05). However, these associations were weak and non-linear, likely due to unequal group sizes.

V. Donor Age vs eGFR



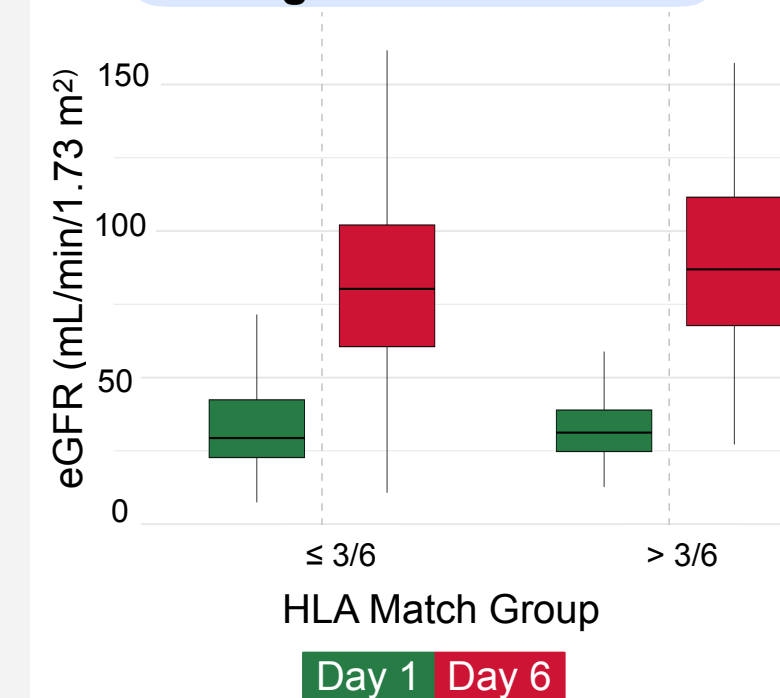
Older age donor's graft showed lower early post-transplant renal function with eGFR <85 mL/min in all grafts of >50 years of age

VI. Donor Gender vs eGFR



Grafts from male donors showed higher early post-transplant eGFR as compared to female

VII. eGFR on Day 1 & 6 vs degree of HLA Match



Higher degree of HLA matching (>3/6) was associated with higher eGFR on day 6

DISCUSSION

Açikgöz et al., 2023

- Donor eGFR & graft size/BMI ratio → better early function
- HLA match was not significant

Martin et al., 2022

- Older donor age → ↓ eGFR-1 and ↓ long-term graft survival
- Confirms donor age as an independent predictor of eGFR

Lim et al., 2022

- Low 12-month eGFR (<30mL/min) → ≥ 2.5 x graft loss, effect stronger with younger donors

CONCLUSION

Variable	Effect
Donor (Graft) Age	Younger grafts show better eGFR than older ones
Donor Gender	Grafts from male donors were linked to higher eGFR.
Degree of HLA Match	Lower degree of HLA-A & -B matches were related to higher mean eGFR.