

Collaborative Corneal Transplantation Studies (CCTS) - 1992



Objective

To investigate the effectiveness of donor-recipient HLA matching among high-risk patients on immunosuppressive regimens following corneal transplant

Methods

Design: Antigen Matching Study (AMS) and Crossmatch Study (CS); both double-blind RCT

Sample Size: AMS: 419; CS: 37

Treatment Groups:

- AMS
 - HLA-A, -B high match: 137
 - HLA-DR high match: 199
 - ABO compatible: 294
- CS
 - Positive crossmatch: 18
 - Negative crossmatch: 19

All received topical steroids postop

Outcome Measures:

- Time to irreversible graft failure
- Time to immunologic graft rejection or allograft rejection

Results

Point 1: HLA subtype matching has no effect on corneal graft survival or incidence of rejection (evaluated at 3 years postop)

- In HLA-A, -B high and low match groups, the rate of graft failure was 33% and 37% ($p=0.35$), incidence of graft reaction was 64% and 66% ($p=0.38$), and incidence of failure due to rejection was 21% and 26% ($p=0.34$), respectively.
- The HLA-DR high and low match groups had similar rates of graft failure ($p=0.95$) and incidence of graft reaction ($p=0.77$). Incidence of graft failure due to rejection in these groups was 25% and 24% ($p=0.60$), respectively.

Point 2: Positive donor-recipient crossmatch does not substantially increase risk of corneal graft failure (evaluated at 2 years postop)

- In positive and negative groups, incidence of graft failure was 36% and 45% ($p=0.66$), graft reaction was 55% and 61% ($p=0.83$), and failure due to rejection was 16% and 38% ($p=0.33$), respectively.

Point 3: ABO blood group matching may reduce risk of corneal graft failure (evaluated at 3 years postop)

- The rates of graft failure in ABO compatible and incompatible groups were 34% and 41% ($p=0.27$), with failure due to incompatibility seen in 31% and 41% ($p=0.05$) of patients in each group, respectively.

TLDR: HLA subtype matching and donor-recipient crossmatch have no effect on corneal graft survival in high-risk patients, and therefore do not need to be a part of the workup for corneal transplantation