



# Relation of Age to Risk of Major Rejections, Allograft Vasculopathy, and Long-Term Mortality in a Contemporary Cohort of Patients Undergoing Heart Transplantation



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## BACKGROUND

- In 2006, the ISHLT guidelines liberated the upper age limit of heart transplantation (HTx) from 55-years to 70-years, and beyond for carefully selected patients.
- However, the relationship of age to outcomes following HTx has not been well studied and results remain inconsistent.
- We aimed to investigate the impact of recipient's age on rejection, vasculopathy and mortality recurrence during long-term follow-up after HTx.

## METHODS

Study population comprised all consecutive 291 patients who underwent HTx between 1991-2016 and are followed-up at our center.

Patients were categorized by age tertiles:

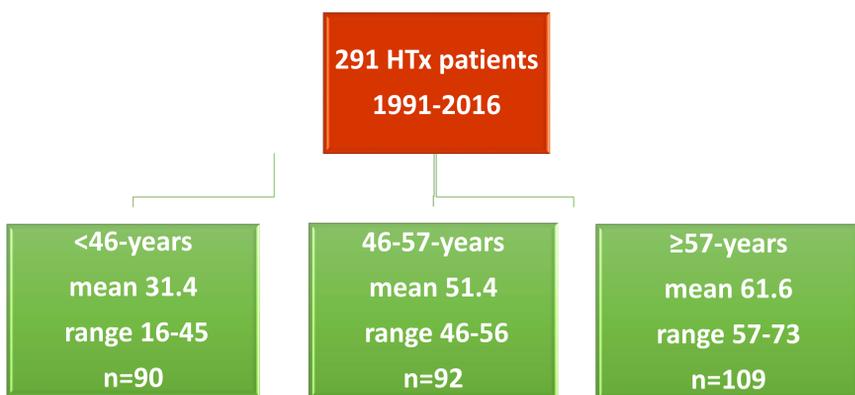
- <46-years
- 46 to 57-years
- ≥57-years

Primary-endpoints:

- Mortality
- Cardiac allograft vasculopathy (CAV)
- Major rejections

## RESULTS

### Study Population

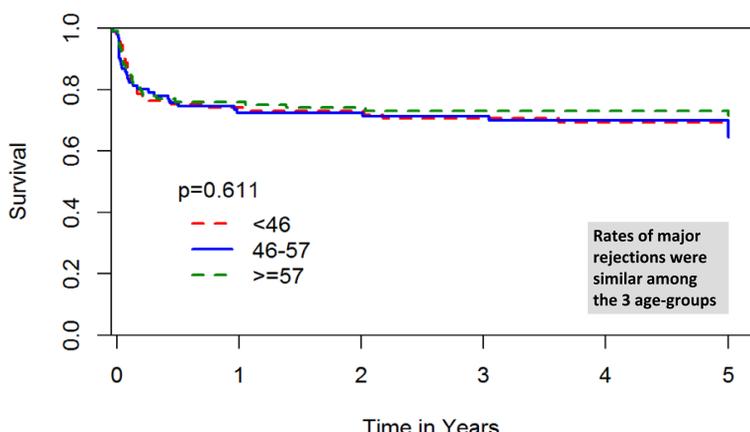


### Descriptive of the cohort by age tertiles

|                       | Age Group <46<br>n =90 | Age Group 46-57<br>n =92 | Age Group ≥57<br>n =109 | P value |
|-----------------------|------------------------|--------------------------|-------------------------|---------|
| Recipient Age (SD)    | 31 (11)                | 51 (3)                   | 61 (3)                  | <0.001  |
| Male (%)              | 64 (71)                | 81 (88)                  | 97 (89)                 | 0.001   |
| Pre HTN (%)           | 14 (15)                | 38 (43)                  | 61 (56)                 | <0.001  |
| Pre DM (%)            | 8 (9)                  | 16 (18)                  | 35 (32)                 | <0.001  |
| Pre smoker (%)        | 16 (18)                | 45 (51)                  | 66 (61)                 | <0.001  |
| Pre Dyslipidemia (%)  | 20 (22)                | 47 (53)                  | 68 (63)                 | <0.001  |
| Late Period ≥2000 (%) | 60 (67)                | 56 (61)                  | 74 (68)                 | 0.55    |
| Tacrolimus based(%)   | 36 (42)                | 28 (34)                  | 34 (37)                 | 0.54    |

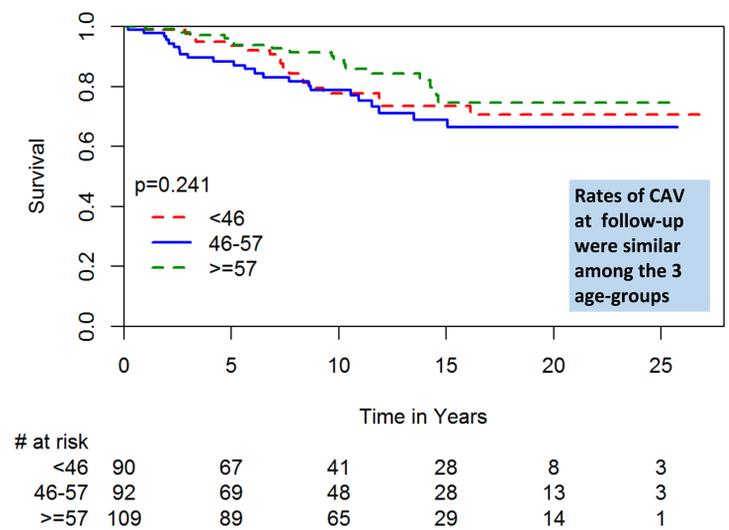
### Kaplan–Meier Estimates of Major Rejections According to Recipient's Age

#### Survival curves:Major Rejection



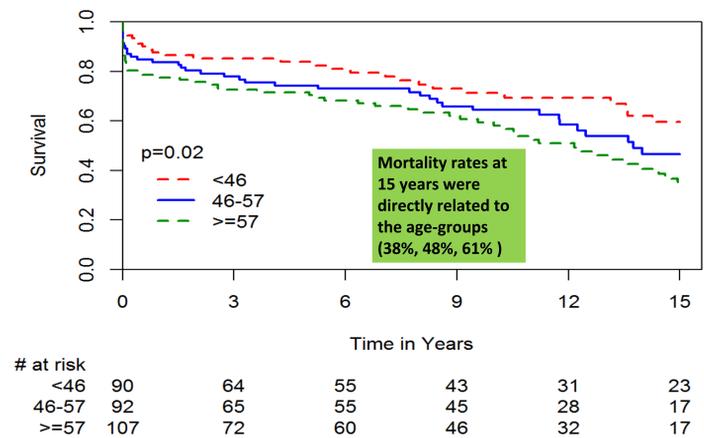
### Kaplan–Meier Estimates of CAV According to Recipient's Age

#### Survival curves: CAV

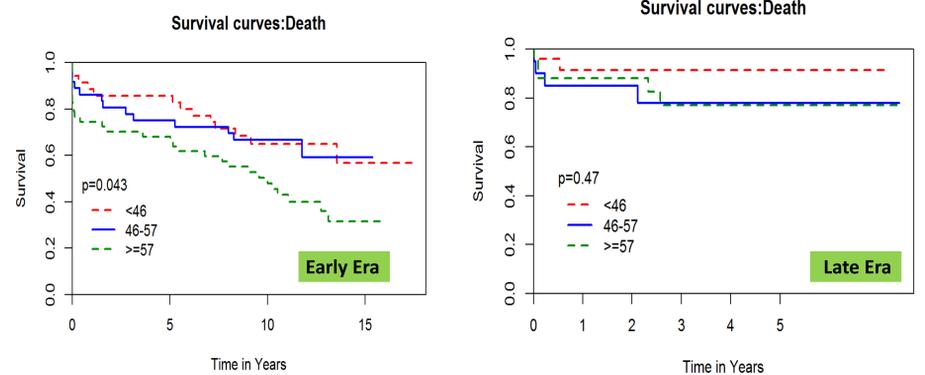


### Kaplan Meier Mortality by age tertiles

#### Survival curves:Death in 15-Year

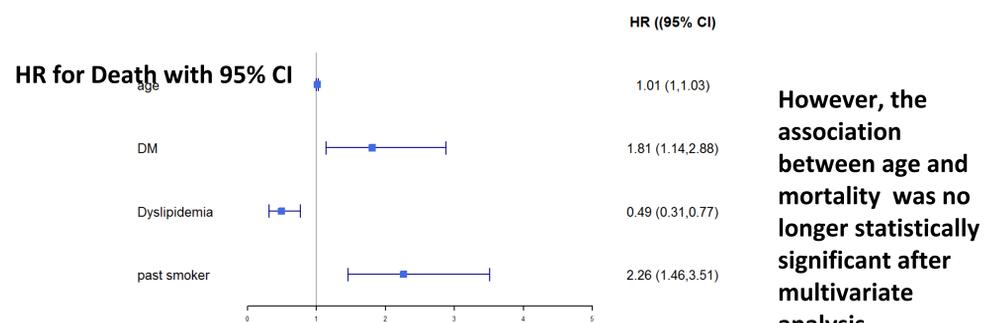


### Death by Age & Eras



In recent years no differences in mortality have been observed among age groups

### Multivariate Analysis for Mortality



## CONCLUSIONS

- ❖ Our findings suggest that, in a contemporary cohort of patients undergoing HTx, the recipient's age does not significantly impact the **risk of major rejections, CAV, and long-term mortality.**
- ❖ As life expectancy continues to increase, it will be necessary to continually redefine what is considered elderly.