# External aortic annuloplasty with a dedicated expansible ring improves outcomes in remodeling root repair compared to homemade Dacron ring

Nathanael Shraer, MD

Pouya Youssefi, MBBS, PhD

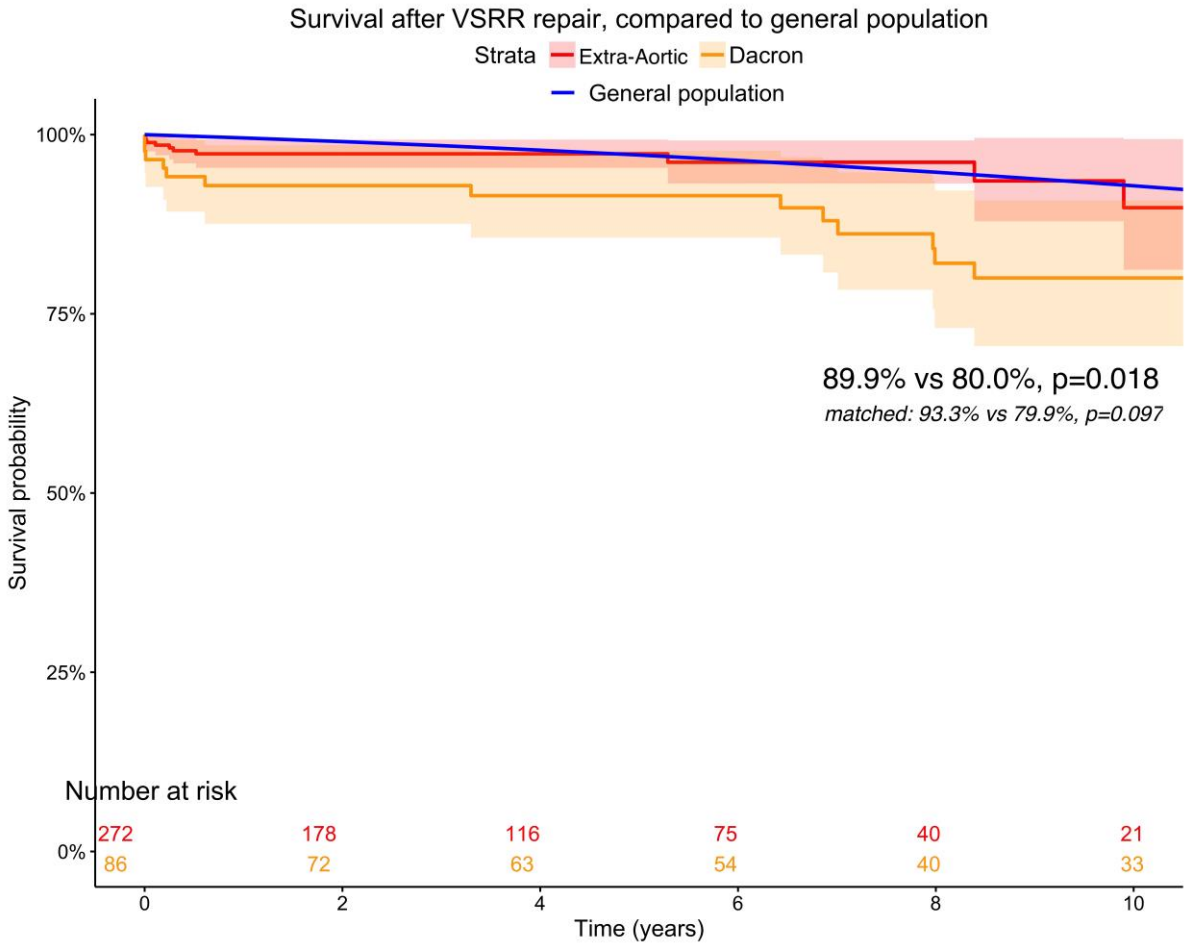
Emmanuel Lansac, MD, PhD

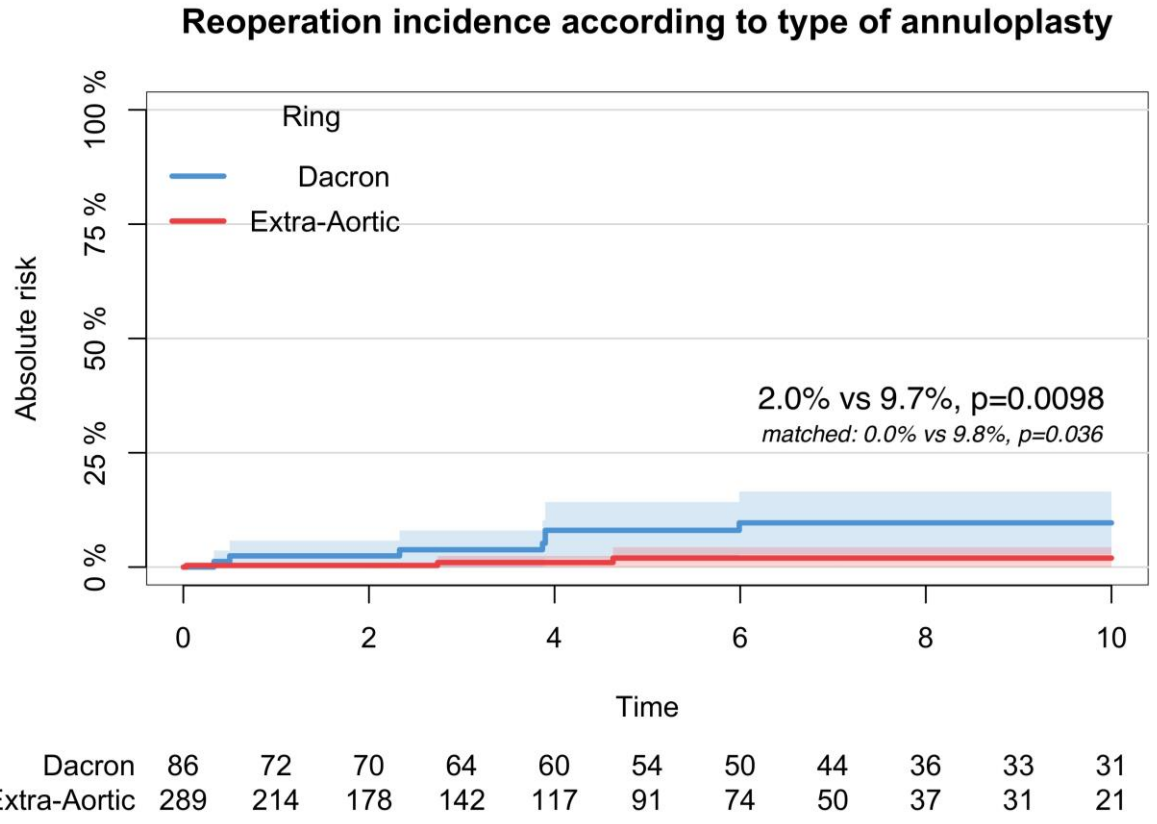
# Patients and Methods

- **375 patients operated: Root remodeling with homemade Dacron ring *or* Extra-Aortic ring annuloplasty, and compared**
- **Repair rate: 77.1%**
- **2003-2020**
- **Age: 52.3 y**
- **Analysis with propensity score matching**

# Survival and Reoperation incidence

## *Competing risks model*

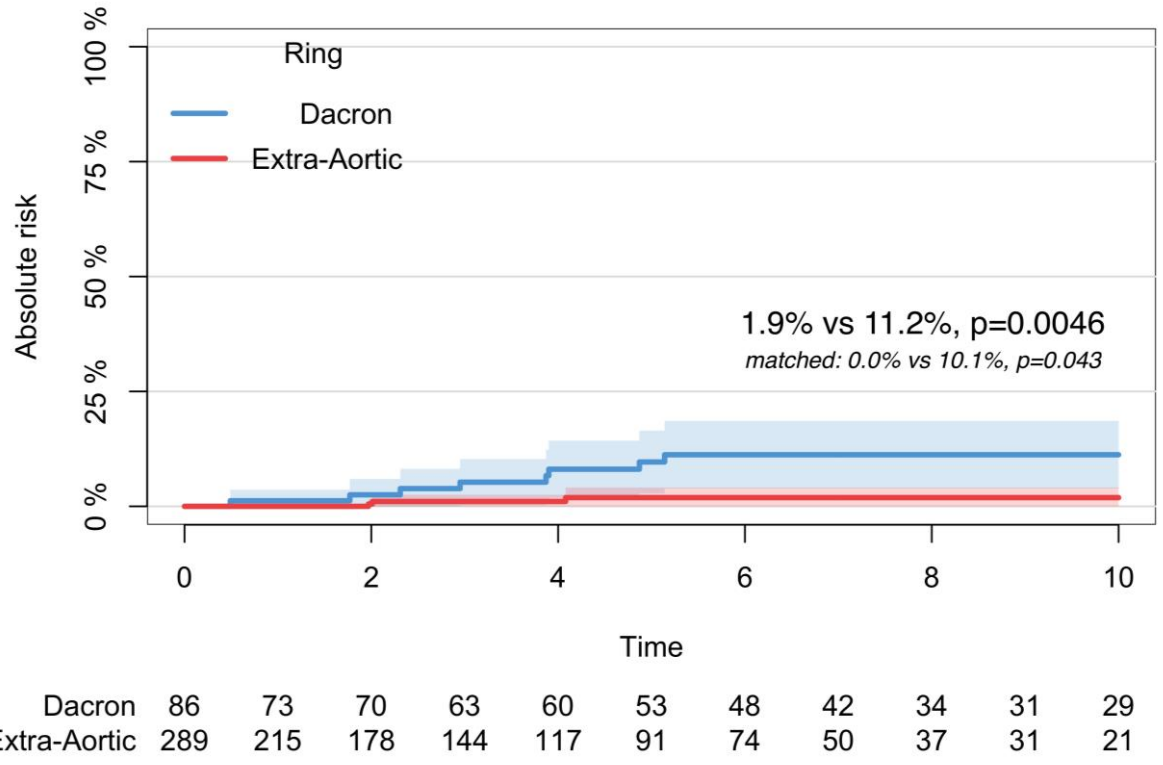


# AI recurrence

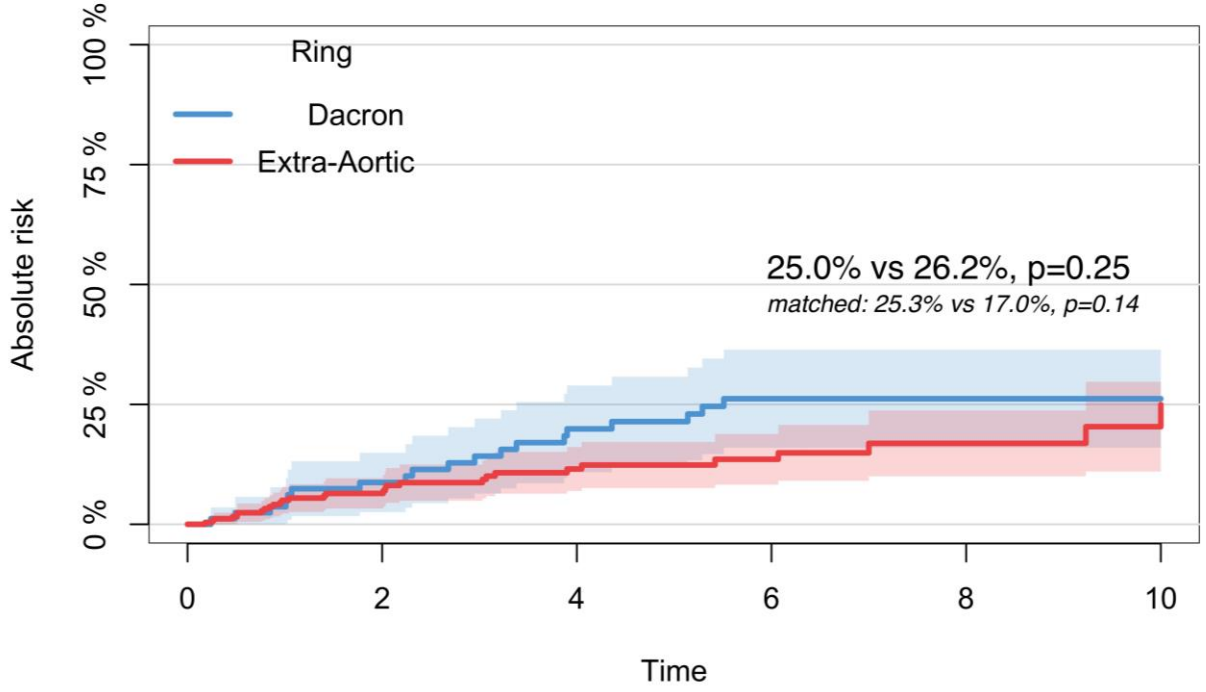
## *Competing risks model*

**AI grade > 2 incidence according to type of annuloplasty**



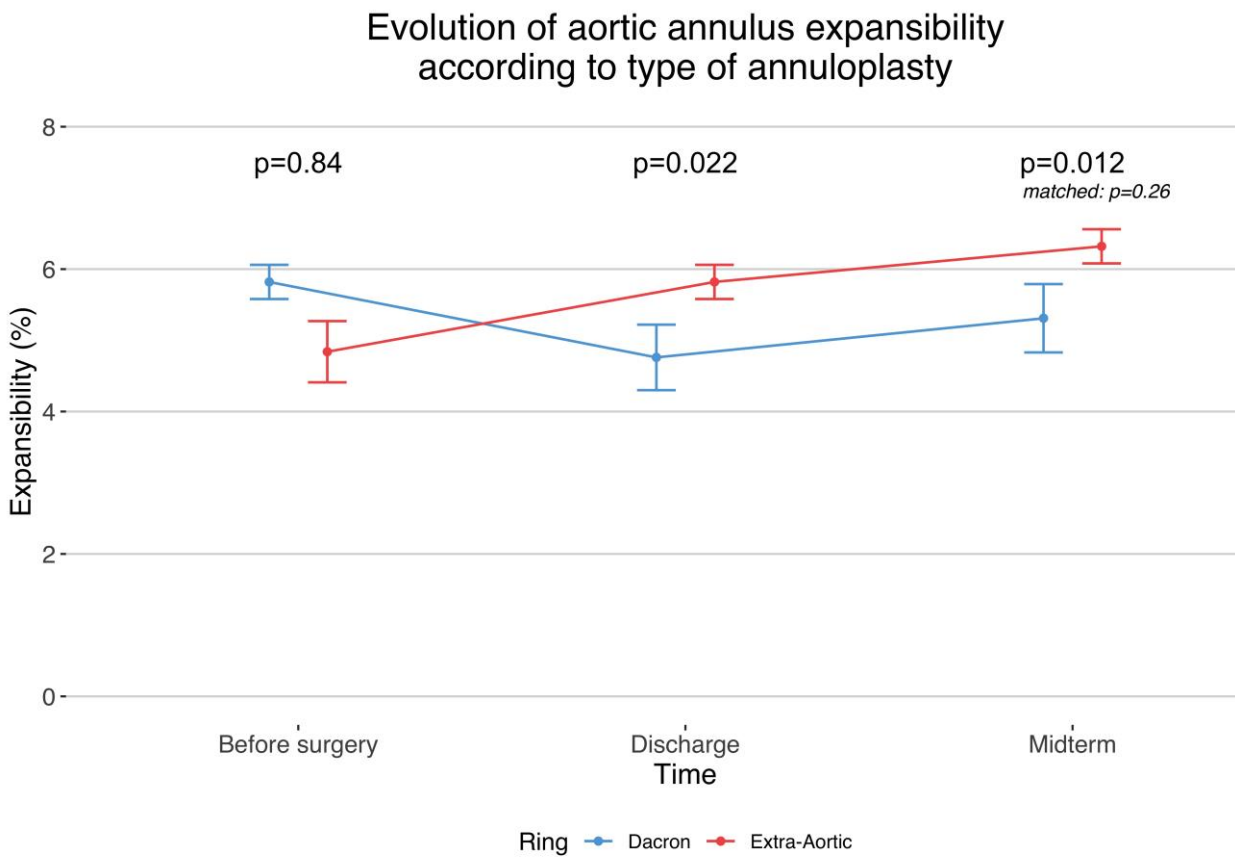

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dacron | 86 | 73 | 70 | 63 | 60 | 53 | 48 | 42 | 34 | 31 | 29 |
| Extra-Aortic | 289 | 215 | 178 | 144 | 117 | 91 | 74 | 50 | 37 | 31 | 21 |

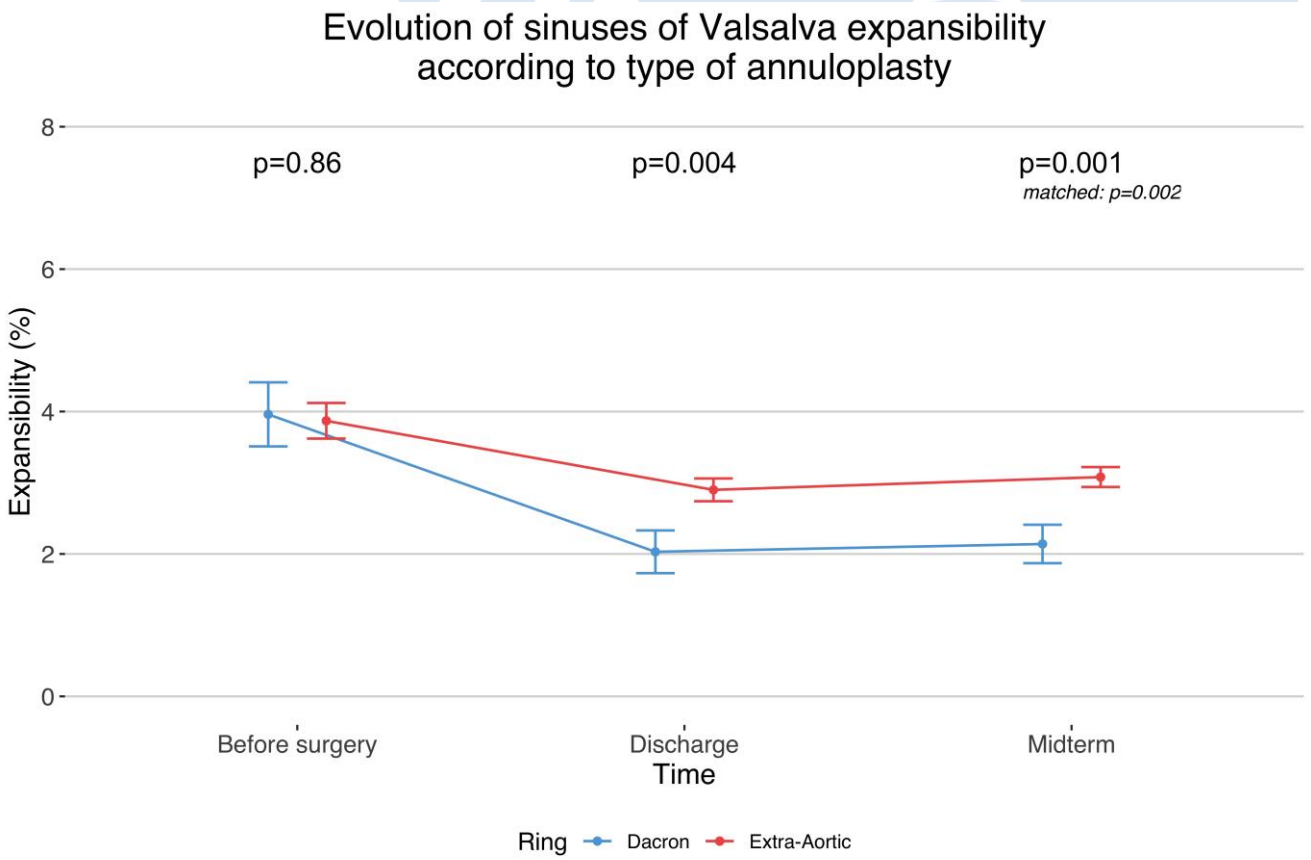
**AI grade > 1 incidence according to type of annuloplasty**



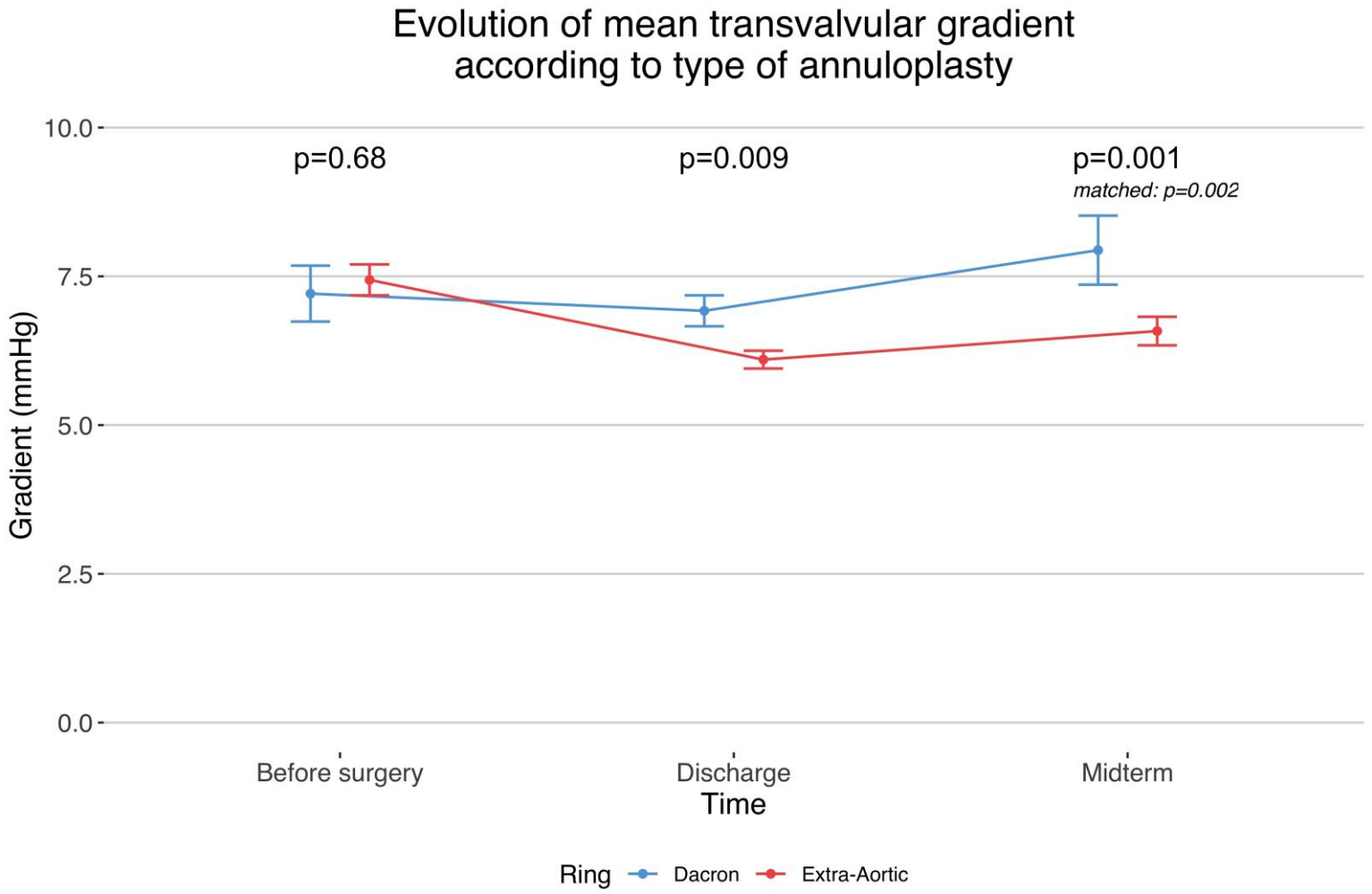

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dacron | 86 | 71 | 65 | 56 | 51 | 45 | 40 | 36 | 29 | 26 | 25 |
| Extra-Aortic | 289 | 206 | 168 | 134 | 105 | 81 | 64 | 41 | 30 | 24 | 15 |

# Evolution of root expansibility



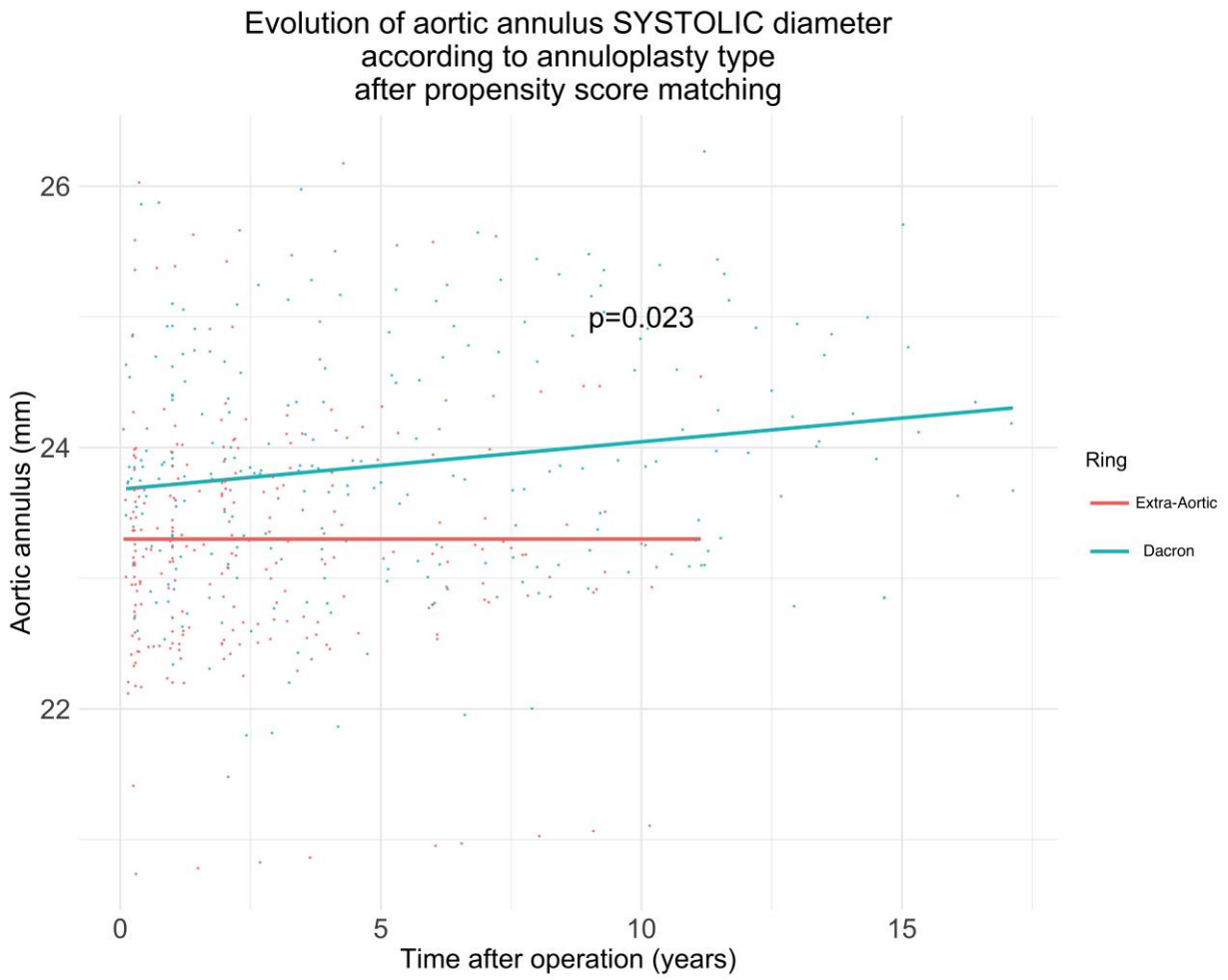



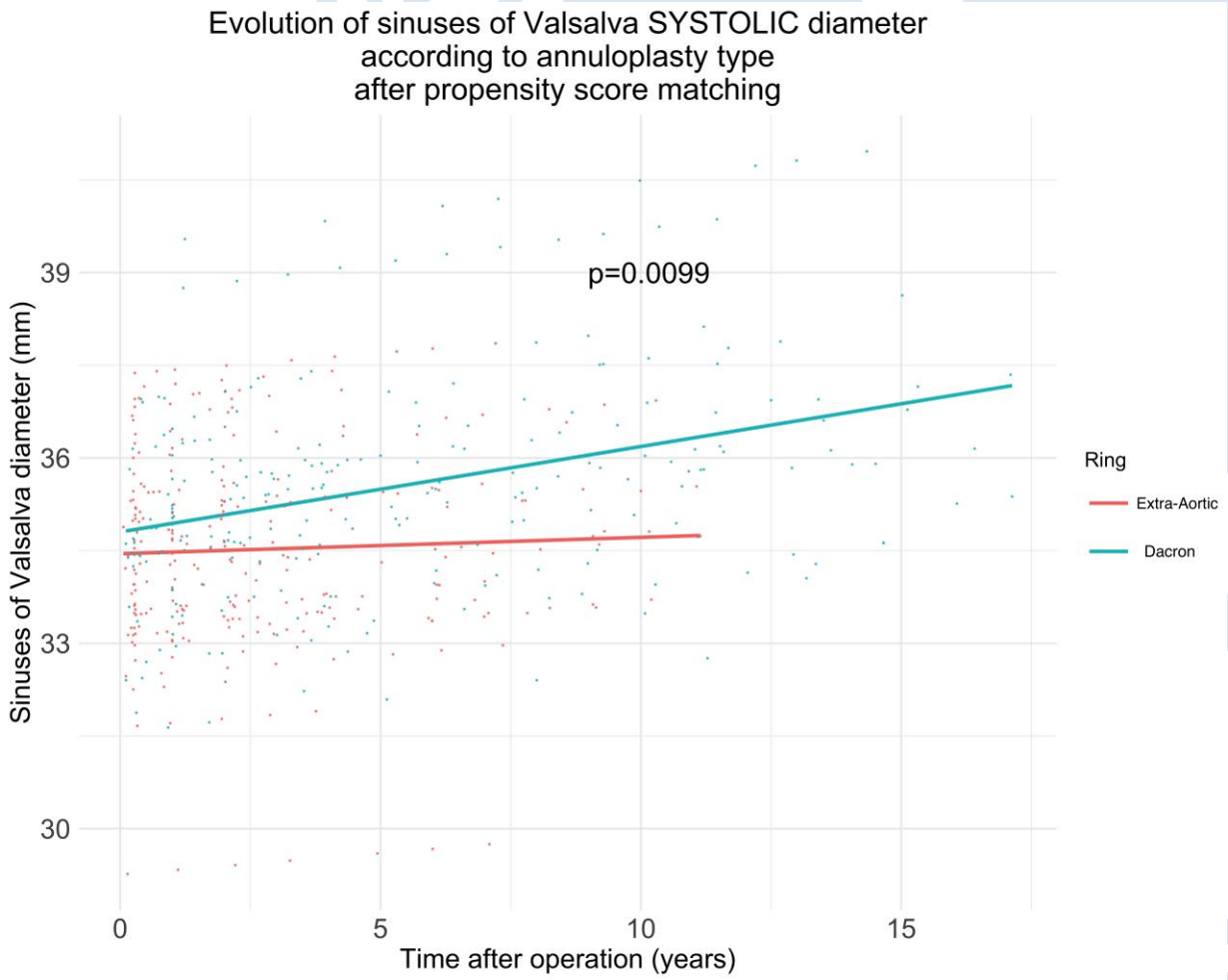
# Evolution of mean transvalvular gradient



# Evolution of Systolic root diameter

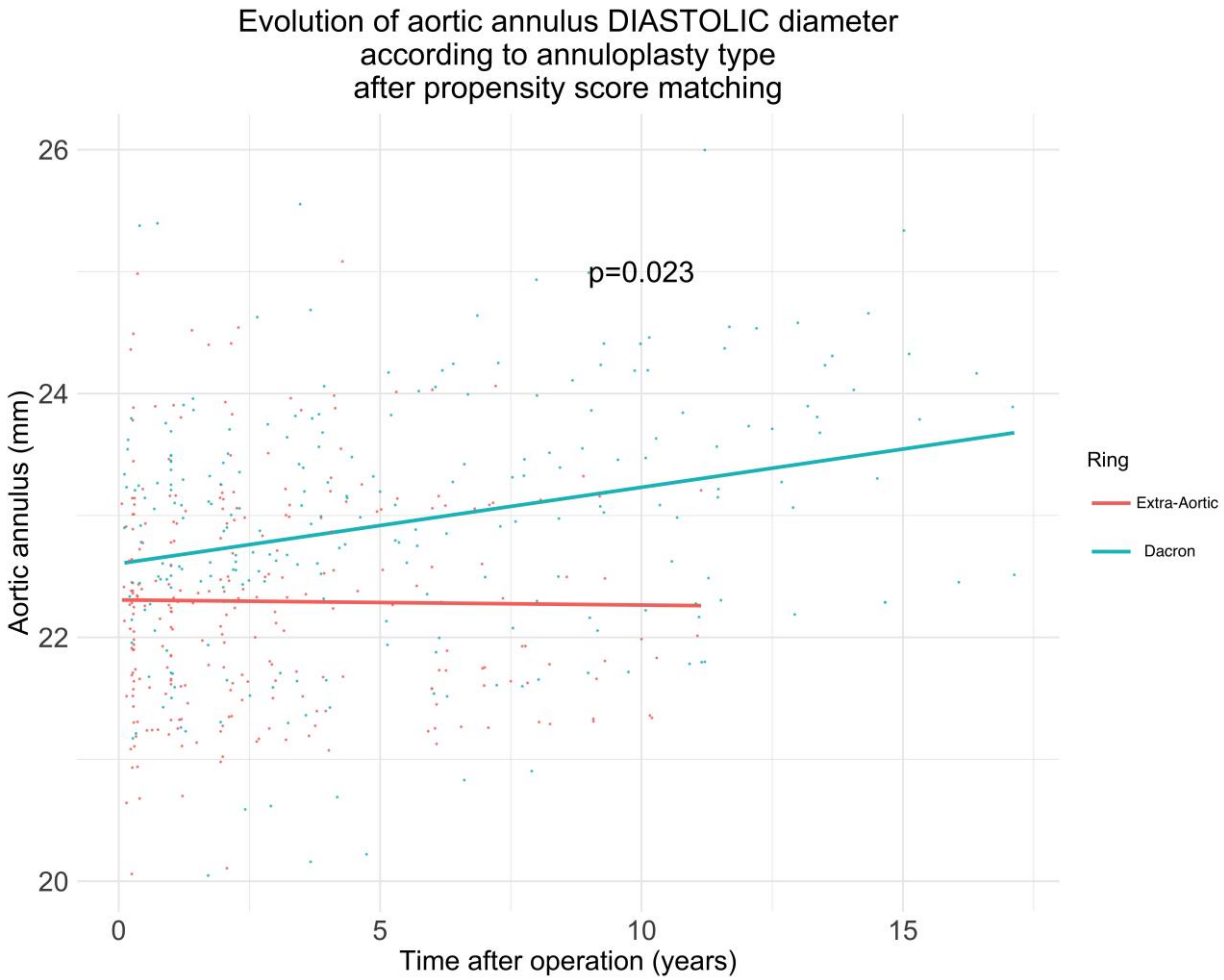
## *Mixed-effects logistic regression*

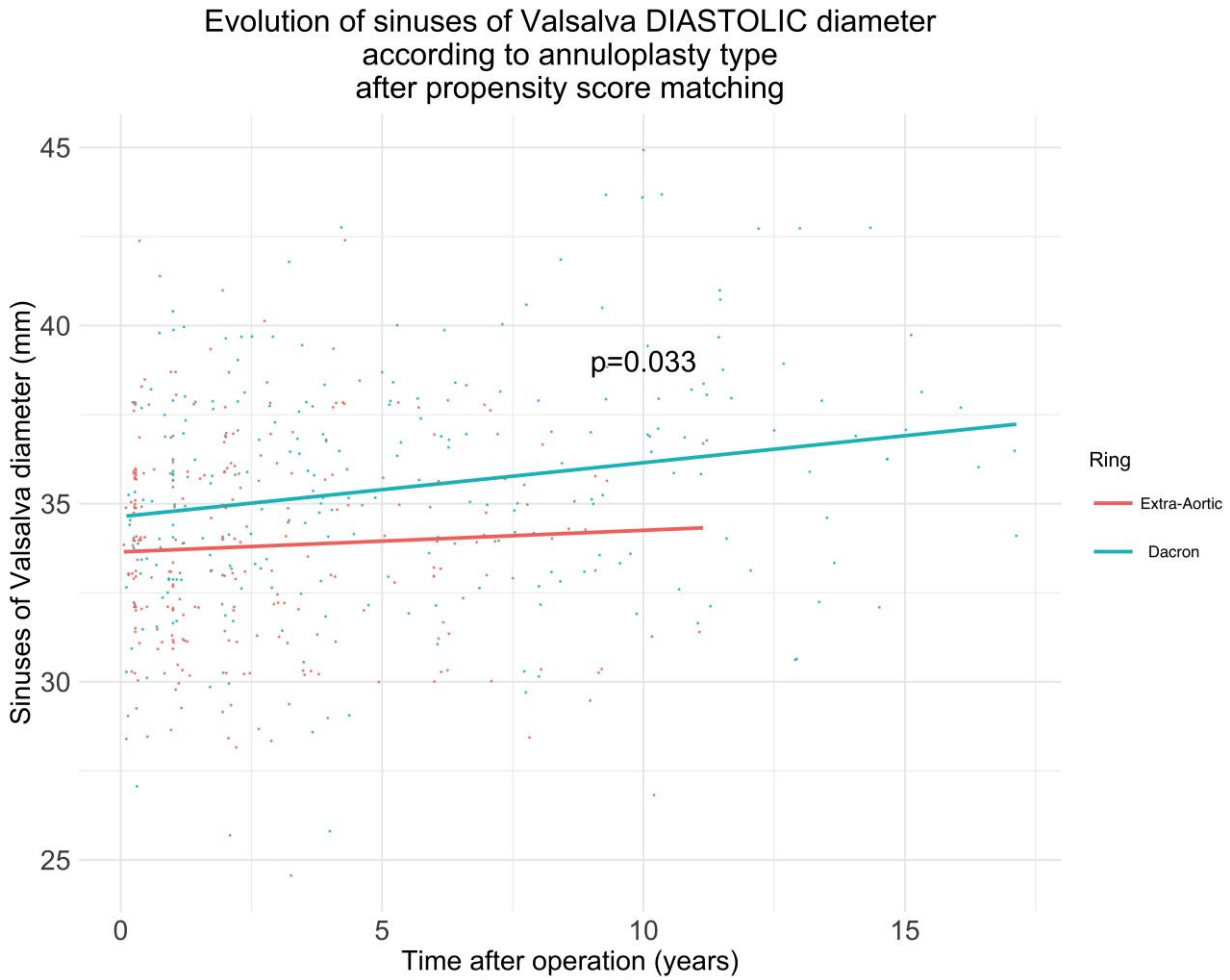


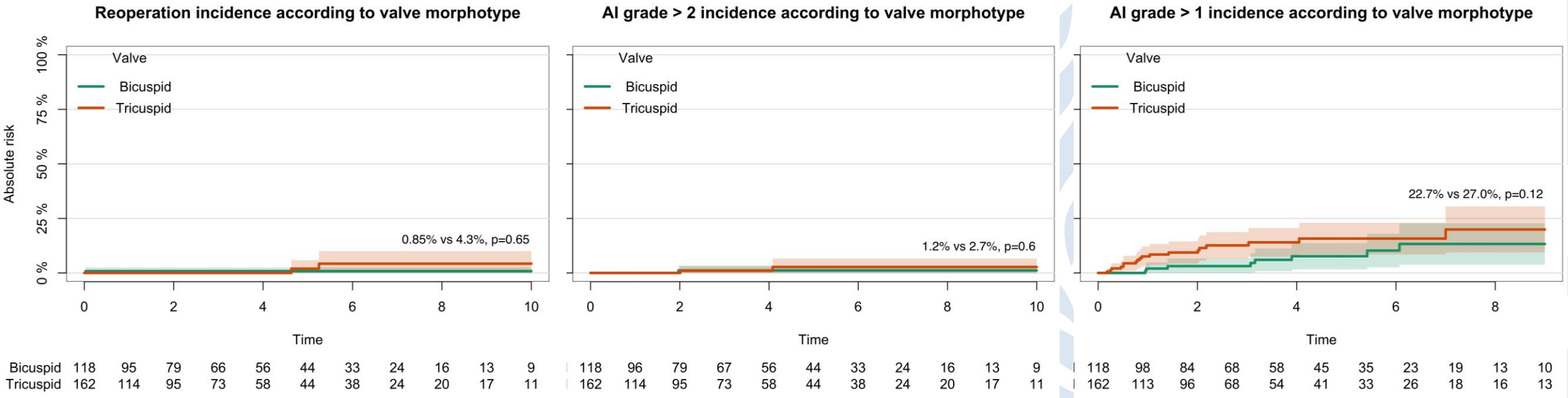
# Evolution of Diastolic root diameter

## *Mixed-effects logistic regression*



# According to valve morphotype after Extra-Aortic ring annuloplasty



# Conclusions

**Aortic root remodeling with calibrated expansible Extra-Aortic ring annuloplasty:**

- **improves outcomes of reoperation, recurrent AI and gradient**
- **maintains physiological root dynamics for durable valve repair**
- **prevents dilation over time**