

**Online Table 1: Treatment Types Used for Hypertension and Hyperlipidemia According to Valve Phenotype**

	<b>Whole Cohort (n=310)</b>	<b>TAV (n=224, 72%)</b>	<b>BAV (n=86, 28%)</b>	<b>p Value</b>
<b>HYPERTENSION TREATMENT</b>				
Angiotensin II receptor blockers, n (%)	93 (30)	76 (34)	17 (20)	<b>0.018</b>
Angiotensin-converting enzyme inhibitors, n (%)	86 (28)	76 (34)	10 (12)	<b>&lt;0.001</b>
Beta-blockers, n (%)	92 (30)	80 (36)	12 (14)	<b>&lt;0.001</b>
Diuretics, n (%)	84 (27)	74 (33)	10 (12)	<b>&lt;0.001</b>
Calcium channel blockers, n (%)	87 (28)	75 (33)	12 (14)	<b>&lt;0.001</b>
<b>LIPID-LOWERING TREATMENT</b>				
Statins, n (%)	198 (64)	170 (76)	28 (33)	<b>&lt;0.001</b>
Fibrates, n (%)	13 (4)	11 (5)	3 (3)	0.165

**Online Table 2: Univariate and Multivariate Logistic Regression Models of Fast Progression of Ascending Aorta Dilatation for the Whole Cohort**

	Univariate		Multivariate	
	OR [CI 95%]	p Value	OR [CI95%]	p Value
<b>Bicuspid aortic valve</b>	<b>1.80 [1.08-2.98]</b>	<b>0.023</b>	1.04 [0.50-2.14]	0.922
Male sex	0.93 [0.57-1.54]	0.801		
<b>Age</b>	<b>0.98 [0.96-0.99]</b>	<b>0.006</b>	0.98 [0.96-1.00]	0.086
Hypertension	0.60 [0.35-1.02]	0.061		
Diabetes	1.25 [0.73-2.13]	0.416		
Glycemia	0.96 [0.82-1.11]	0.572		
BMI	1.01 [0.96-1.01]	0.710		
BSA	1.88 [0.63-5.64]	0.261		
<b>LDL</b>	<b>1.37 [1.04-1.80]</b>	<b>0.027</b>	1.27 [0.96-1.69]	0.097
Apo B / Apo A ratio	2.20 [0.63-7.66]	0.215		
HDL	0.80 [0.46-1.41]	0.440		
TG	1.05 [0.78-1.41]	0.771		
SBP baseline, mmHg	0.99 [0.98-1.00]	0.296		
DBP baseline, mmHg	1.01 [0.96-1.04]	0.456		
Valvulo-arterial impedance	1.12 [0.82-1.53]	0.483		
V <sub>peak</sub> baseline, cm/s	1.00 [1.00-1.01]	0.449		
ΔV <sub>peak</sub> , cm/s/year	1.00 [1.00-1.01]	0.428		
AA diameter baseline, mm	0.98 [0.94-1.03]	0.435		

**Legend:** BMI; body mass index, BSA; body surface area, LDL; low density lipoprotein, Apo A/Apo B; Apolipoprotein A1/ Apolipoprotein B, HDL; high density lipoprotein, TG; triglycerides, SBP; systolic blood pressure, DBP; diastolic blood pressure, V<sub>peak</sub>; peak aortic jet velocity.

**Online Table 3: Logistic Regression Models of Fast Progression of Ascending Aorta Dilation According to Sex**

	Men		Women	
	112 Fast / 110 Slow		43 Fast / 45 Slow	
	OR [CI 95%]	p Value	OR [CI95%]	p Value
Bicuspid aortic valve	1.33 [0.71-2.51]	0.373	<b>3.47 [1.42-8.49]</b>	<b>0.006</b>
Age	0.99 [0.97-1.01]	0.215	<b>0.96 [0.93-0.99]</b>	<b>0.004</b>
Hypertension	0.67 [0.34-1.33]	0.253	0.46 [0.19-1.12]	0.088
Diabetes	0.93 [0.52-1.68]	0.816	0.53 [0.16-1.72]	0.288
Glycemia	0.97 [0.81-1.15]	0.695	0.89 [0.63-1.28]	0.534
BMI	1.03 [0.97-1.01]	0.308	0.96 [0.87-1.05]	0.360
BSA	4.37 [0.94-20.44]	0.061	0.24 [0.01-4.17]	0.329
LDL	1.27 [0.91-1.79]	0.159	<b>1.71 [1.02-2.86]</b>	<b>0.043</b>
Apo B / Apo A ratio	2.33 [0.55-9.87]	0.253	1.82 [0.15-21.98]	0.638
HDL	0.59 [0.29-1.20]	0.145	1.75 [0.57-5.43]	0.330
TG	1.06 [0.77-1.48]	0.708	0.93 [0.44-1.97]	0.854
SBP baseline, mmHg	0.98 [0.98-1.01]	0.642	0.99 [0.96-1.01]	0.216
DBP baseline, mmHg	1.01 [0.98-1.04]	0.572	1.01 [0.97-1.06]	0.615
Valvulo-arterial impedance	1.45 [0.99-2.12]	0.054	0.56 [0.30-1.05]	0.071
V <sub>peak</sub> baseline, cm/s	1.00 [1.00-1.01]	0.313	1.00 [0.99-1.01]	0.709
ΔV <sub>peak</sub> , cm/s/year	1.01 [0.99-1.02]	0.645	1.00 [0.97-1.02]	0.882
AA diameter baseline, mm	0.95 [0.90-1.01]	0.058	1.08 [0.98-1.19]	0.120

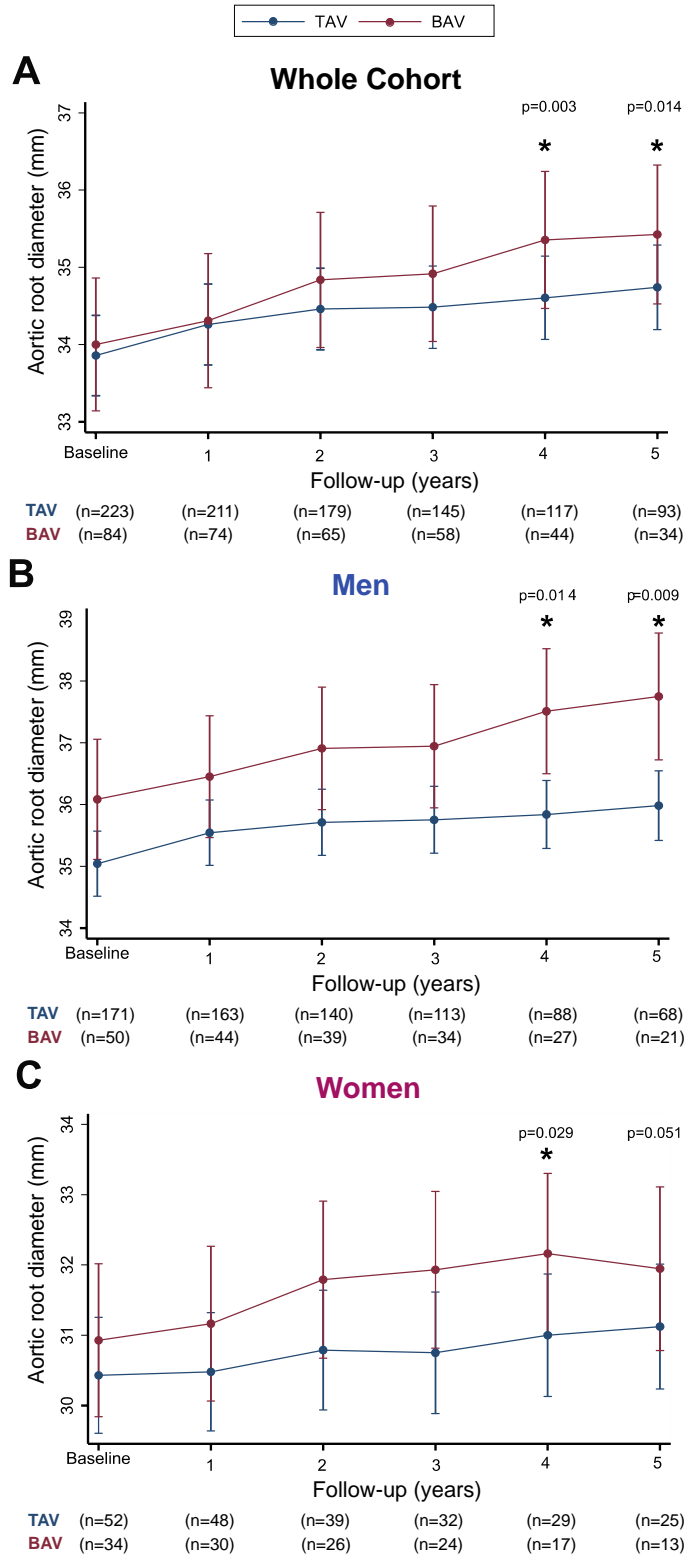
**Legend:** BMI; body mass index, BSA; body surface area, LDL; low density lipoprotein, Apo A/Apo B; Apolipoprotein A1/ Apolipoprotein B, HDL; high density lipoprotein, TG; triglycerides, SBP; systolic blood pressure, DBP; diastolic blood pressure, V<sub>peak</sub>; peak aortic jet velocity.

**Online Table 4: Logistic Regression Models of Fast Progression of Ascending Aorta Dilation According to Valve Phenotype**

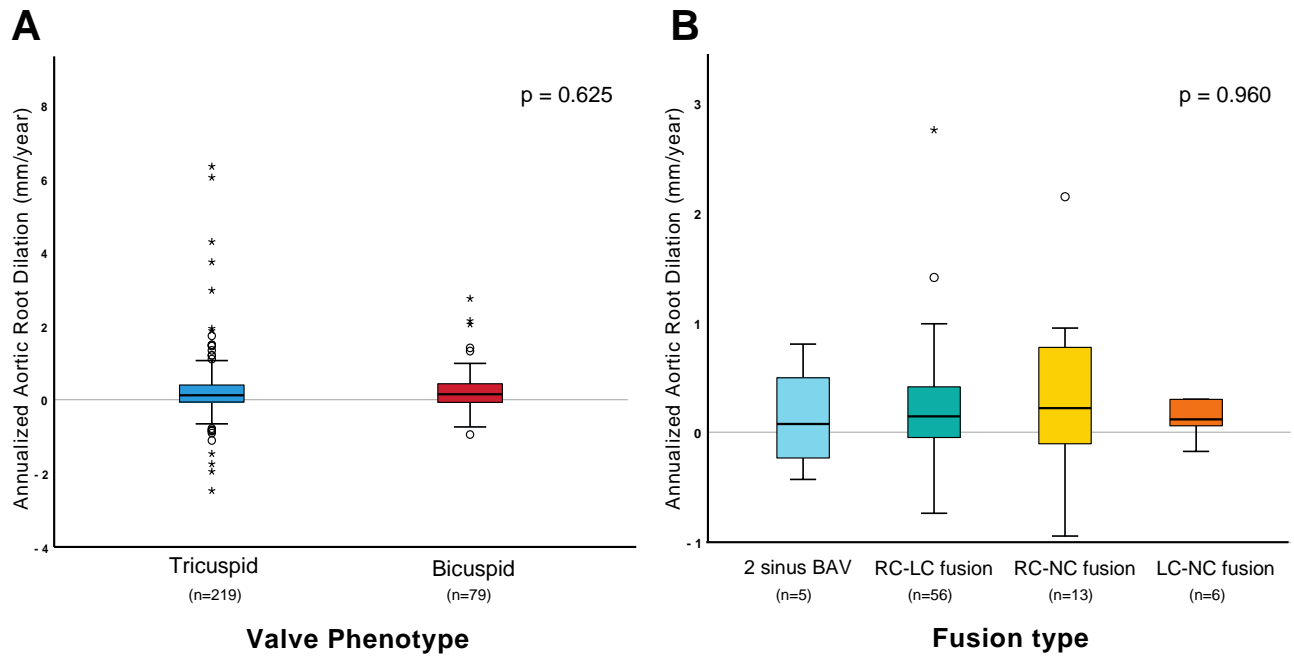
	TAV		BAV	
	103 Fast / 121 Slow		52 Fast / 34 Slow	
	OR [CI 95%]	p Value	OR [CI95%]	p Value
Age	0.97 [0.94-1.01]	0.101	0.99 [0.96-1.02]	0.449
Hypertension	0.70 [0.31-1.59]	0.394	0.79 [0.33-1.87]	0.600
Diabetes	1.13 [0.63-2.03]	0.672	0.86 [0.18-4.11]	0.851
Glycemia	0.97 [0.84-1.16]	0.865	1.02 [0.65-1.61]	0.933
BMI	1.02 [0.96-1.08]	0.580	1.04 [0.94-1.16]	0.464
BSA	2.21 [0.58-8.41]	0.247	1.59 [0.22-11.68]	0.646
LDL	1.24 [0.89-1.74]	0.200	1.40 [0.82-2.40]	0.221
Apo B / Apo A ratio	2.00 [0.41-9.76]	0.389	2.15 [0.26-17.89]	0.478
HDL	0.96 [0.50-1.85]	0.908	0.36 [0.11-1.21]	0.099
TG	0.94 [0.63-1.41]	0.766	1.22 [0.75-1.96]	0.424
SBP baseline, mmHg	1.00 [0.98-1.01]	0.652	1.00 [0.98-1.03]	0.914
DBP baseline, mmHg	1.01 [0.98-1.04]	0.385	0.98 [0.93-1.03]	0.432
Valvulo-arterial impedance	1.31 [0.89-1.93]	0.174	1.21 [0.63-2.32]	0.570
V <sub>peak</sub> baseline, cm/s	1.00 [1.00-1.01]	0.379	1.00 [0.99-1.01]	0.781
ΔV <sub>peak</sub> , cm/s/year	1.00 [1.00-1.01]	0.849	1.00 [0.97-1.02]	0.168
AA diameter baseline, mm	0.96 [0.90-1.02]	0.221	0.97 [0.90-1.04]	0.338

**Legend:** BMI; body mass index, BSA; body surface area, LDL; low density lipoprotein, Apo A/Apo B; Apolipoprotein A1/ Apolipoprotein B, HDL; high density lipoprotein, TG; triglycerides, SBP; systolic blood pressure, DBP; diastolic blood pressure, V<sub>peak</sub>; peak aortic jet velocity.

**Online Figure 1: Linear Prediction Models of Aortic Root Size According to Aortic Valve Phenotype and Sex**



**Online Figure 2: Annualized Aortic Root Dilation Rate According to Valve Phenotype and Fusion Type**



**Legend:** RC-LC; right-left coronary fusion, RC-NC; right-non coronary, LC-NC; left-non coronary fusion.

**Online Figure 3: Annualized Ascending Aorta and Aortic Root Dilation Rate According to Sex and Valve Phenotype**

