

Impact of valve size, effective and indexed effective orifice area after aortic valve replacement.

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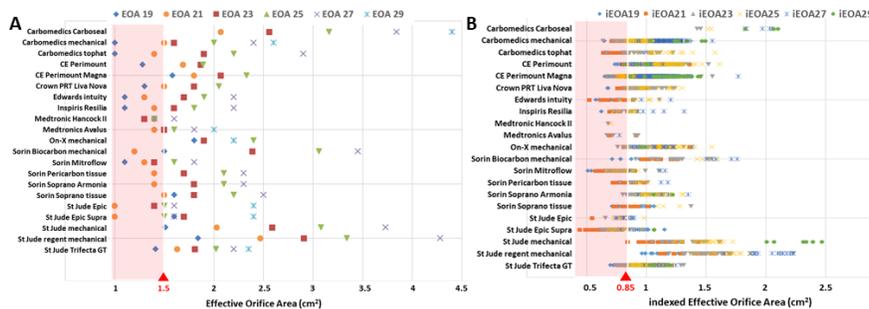
August 11, 2020

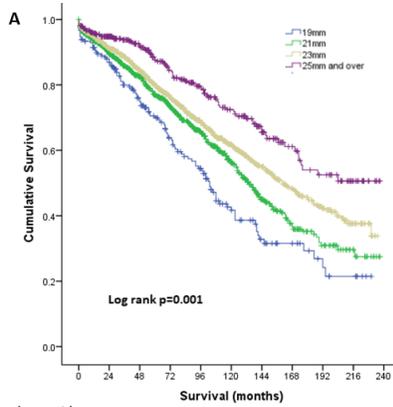
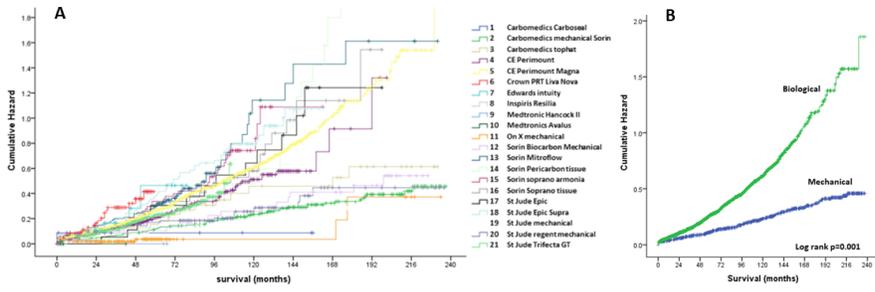
Abstract

Introduction - The impact of manufacturer labelled prosthesis size and predicted effective orifice area (EOA) on long term survival after aortic valve replacement is not clear although indexed effective orifice area (iEOA) has been associated with worse survival. **Methods** - Data was retrospectively collected from Jan 2000 – Dec 2019 for prosthesis type, model and size for isolated aortic valve replacements. Stratified survival was compared between groups and subgroups for labelled valve size, EOA and predicted PPM. **Results** – Total of 3444 patients were included. Moderate and severe PPM was 15.6% and 1.6% respectively. Cumulative life time hazard was worse for biological valves (mortality: biological 77.7% vs mechanical 64.8%, $p=0.001$). Mean survival was 132.7 months for biological versus 191.3 months for mechanical valves ($p=0.001$). Moderate prosthetic AS (EOA = 1-1.5 cm²) was 12.1% and severe prosthetic AS (EOA[?]1 cm²) was 0.8% respectively. Worse survival in the presence of moderate-severe prosthetic AS was seen in biological valves (115.2 months versus 133.7 months, $p=0.001$ for EOA[?]1.5cm² and >1.5cm² respectively). There was a statistically significant correlation between survival and iEOA (Spearman's rho=0.084, $p=0.001$, BCa bootstrap 95% CI:0.050, 0.120). Moderate to severe PPM (iEOA[?]0.85cm²/m²) was a predictor of worse long term survival (HR 3.56; 95% CI: 1.37 - 9.25; $p=0.009$). **Conclusion** - Predicted prosthetic moderate to severe AS and moderate to severe PPM adversely affect long term survival. Smaller valves are associated with reduced survival in all groups.

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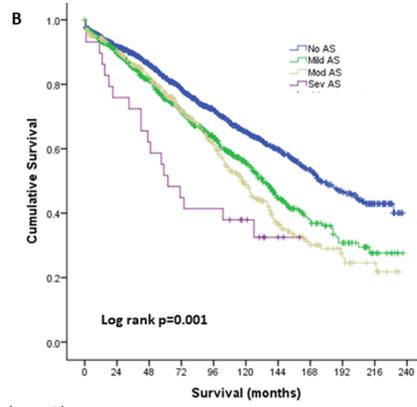
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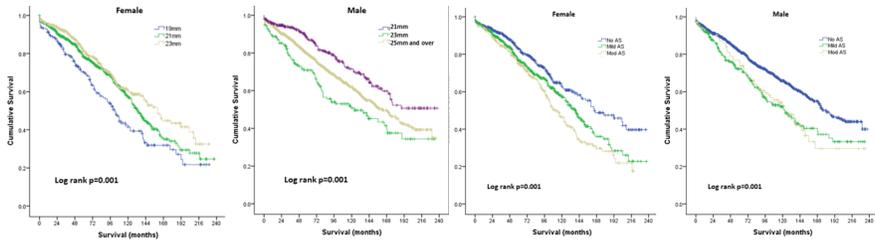
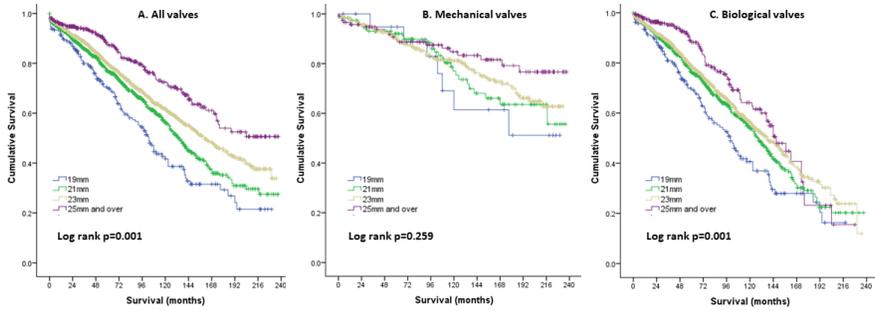
Numbers at risk

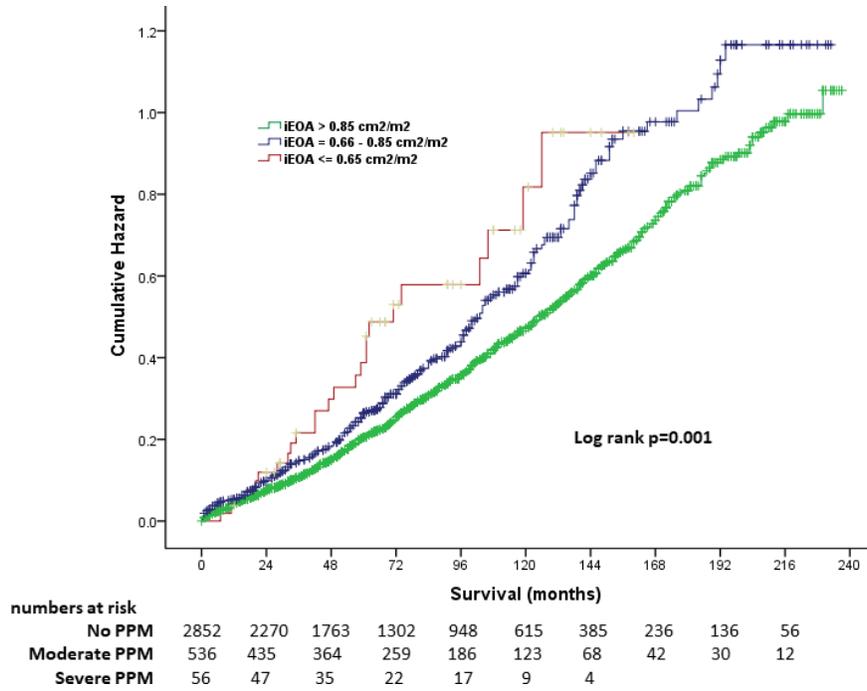
	0	24	48	72	96	120	144	168	192	216	240
19mm	211	173	130	91	73	43	26	18	10	6	
21mm	965	779	614	456	321	198	115	65	34	16	
23mm	1903	1510	1179	853	611	398	240	149	89	30	15
≥25mm	359	286	235	182	146	108	76	46	33	16	



Numbers at risk

	0	24	48	72	96	120	144	168	192	216	240
No AS	2022	1610	1251	918	672	448	291	188	114	47	20
mild AS	975	761	594	436	308	193	106	57	34	11	6
moderate AS	417	358	298	215	158	98	57	33	18	10	
severe AS	29	22	18	13	12	8	3				





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