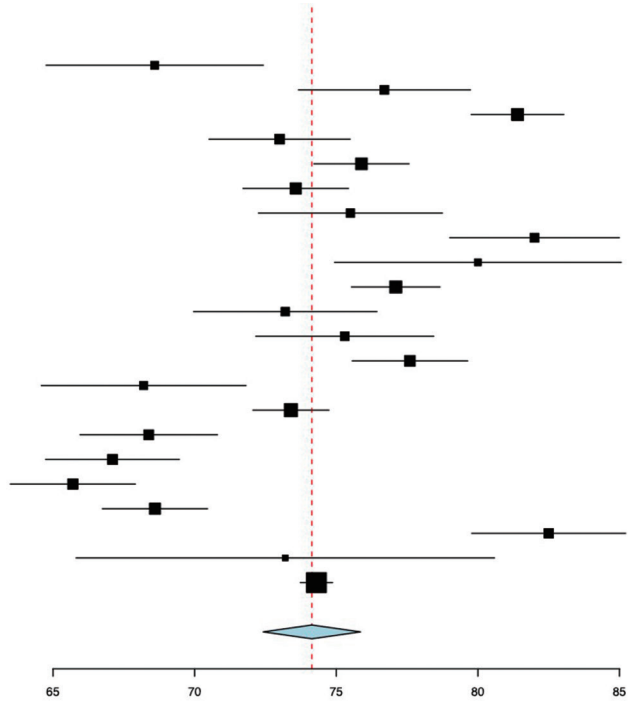


**Table S1** Modified Institute of Health Economics Quality Appraisal Checklist for Case Series

Number	Criteria
1	Was the hypothesis/aim/objective of the study clearly stated?
2	Was the study conducted prospectively?
3	Were the cases collected in more than one center?
4	Were patients recruited consecutively?
5	Were the characteristics of the patients included in the study described?
6	Were the eligibility criteria for entry into the study clearly stated?
7	Did patients enter the study at a similar point in the disease?
8	Was the intervention of interest clearly described?
9	Were additional interventions clearly described?
10	Were relevant outcome measured established a priori?
11	Were the relevant outcome measured using appropriate objective/subjective methods?
12	Were the relevant outcome measures made before and after the intervention?
13	Were the statistical tests used to assess the relevant outcomes appropriate?
14	Was follow-up long enough for important events and outcomes to occur?
15	Were losses to follow-up reported?
16	Did the study provided estimates of random variability in the data analysis of relevant outcomes?
17	Were the adverse events reported?
18	Were the conclusions of the study supported by results?
19	Were conflicts of interest reported?

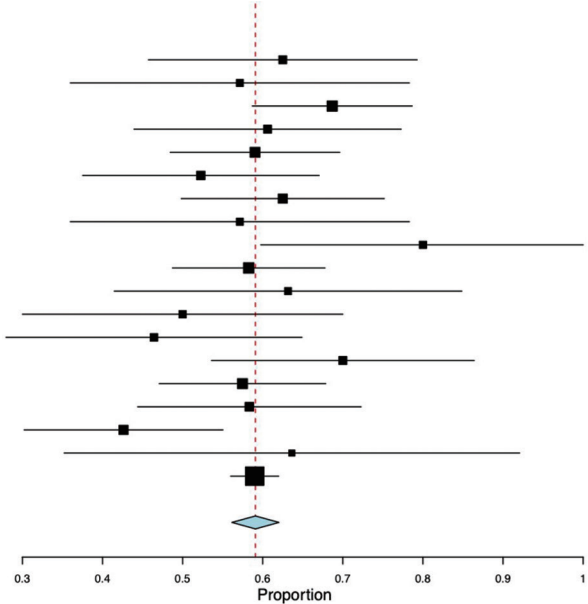
Studies	Estimate (95% C.I.)
Aalaei-Andabili 2018	68.590 (64.755, 72.425)
Costopoulos 2014	76.700 (73.663, 79.737)
De Biase 2018	81.400 (79.765, 83.035)
Djordjevic 2017	73.000 (70.509, 75.491)
Fan 2020	75.890 (74.210, 77.570)
Fu 2020	73.570 (71.709, 75.431)
Gorla 2021	75.500 (72.252, 78.748)
Hayashida 2013	82.000 (79.006, 84.994)
Himbert 2012	80.000 (74.939, 85.061)
Husso 2021	77.100 (75.536, 78.664)
Jung 2021	73.200 (69.963, 76.437)
Kochman 2020	75.300 (72.159, 78.441)
Kochman1 2014	77.600 (75.563, 79.637)
Kumar 2021	68.200 (64.586, 71.814)
Liao 2018	73.400 (72.055, 74.745)
Pineda 2020	68.380 (65.955, 70.805)
Sun 2021	67.100 (64.740, 69.460)
Tsai 2021	65.700 (63.493, 67.907)
Waksman 2020	68.600 (66.743, 70.457)
Watanabe 2015	82.500 (79.782, 85.218)
Wijesinghe 2010	73.200 (65.813, 80.587)
Yoon 2020	74.300 (73.733, 74.867)

**Overall (I<sup>2</sup>=9388 %, P<0.001) 74.138 (72.420, 75.856)**



Studies	Estimate (95% C.I.)	Ev/Trt
Aalaei-Andabili 2018	0.625 (0.457, 0.793)	20/32
Costopoulos 2014	0.571 (0.360, 0.783)	12/21
De Biase 2018	0.687 (0.587, 0.787)	57/83
Djordjevic 2017	0.606 (0.439, 0.773)	20/33
Fan 2020	0.590 (0.485, 0.696)	49/83
Fu 2020	0.523 (0.375, 0.670)	23/44
Gorla 2021	0.625 (0.498, 0.752)	35/56
Hayashida 2013	0.571 (0.360, 0.783)	12/21
Himbert 2012	0.800 (0.598, 1.000)	12/15
Husso 2021	0.583 (0.487, 0.678)	60/103
Jung 2021	0.632 (0.415, 0.848)	12/19
Kochman 2020	0.500 (0.300, 0.700)	12/24
Kochman1 2014	0.464 (0.280, 0.649)	13/28
Kumar 2021	0.700 (0.536, 0.864)	21/30
Liao 2018	0.575 (0.471, 0.679)	50/87
Tsai 2021	0.583 (0.444, 0.723)	28/48
Waksman 2020	0.426 (0.302, 0.550)	26/61
Watanabe 2015	0.636 (0.352, 0.921)	7/11
Yoon 2020	0.590 (0.560, 0.620)	610/1034

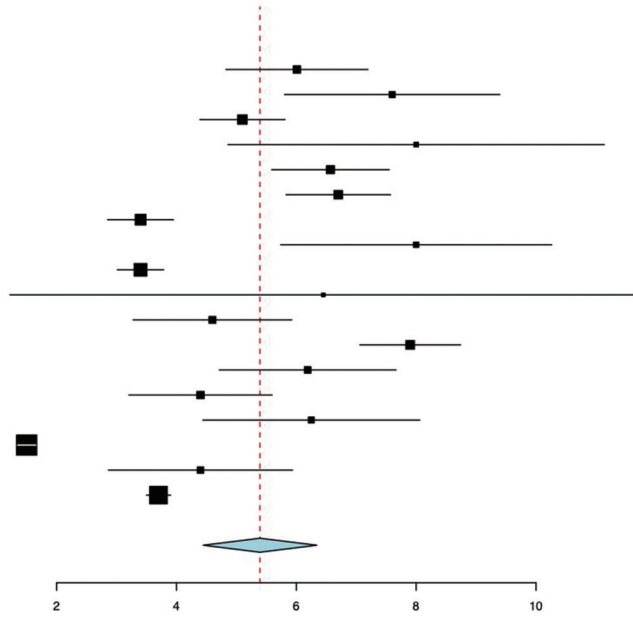
**Overall (I<sup>2</sup>=1189 %, P=0.309) 0.591 (0.562, 0.620) 1079/1833**



**Studies** Estimate (95% C.I.)

Aalaei-Andabili 2018	6.010 (4.825, 7.195)
Costopoulos 2014	7.600 (5.804, 9.396)
De Biase 2018	5.100 (4.390, 5.810)
Djordjevic 2017	8.000 (4.861, 11.139)
Fan 2020	6.570 (5.589, 7.551)
Fu 2020	6.700 (5.828, 7.572)
Gorla 2021	3.400 (2.850, 3.950)
Himbert 2012	8.000 (5.738, 10.262)
Husso 2021	3.400 (3.014, 3.786)
Jung 2021	6.450 (1.221, 11.679)
Kumar 2021	4.600 (3.276, 5.924)
Liao 2018	7.900 (7.059, 8.741)
Pineda 2020	6.190 (4.715, 7.665)
Sun 2021	4.400 (3.206, 5.594)
Tsai 2021	6.250 (4.439, 8.061)
Waksman 2020	1.500 (1.349, 1.651)
Wijesinghe 2010	4.400 (2.864, 5.936)
Yoon 2020	3.700 (3.499, 3.901)

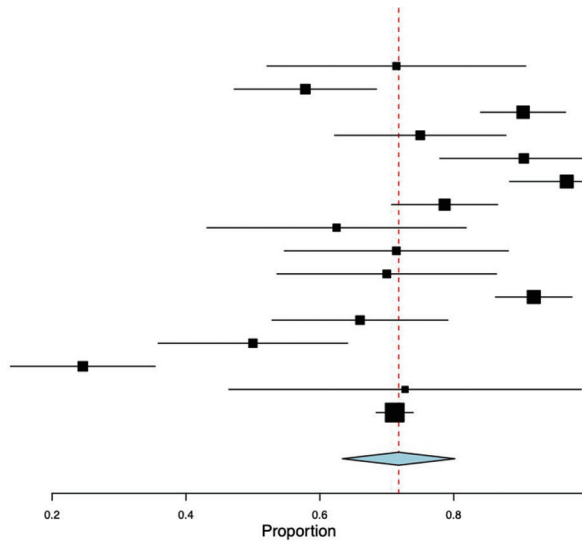
**Overall (I<sup>2</sup>=9796 %, P<0.001) 5.394 (4.446, 6.342)**



**Studies** Estimate (95% C.I.) Ev/Trt

Costopoulos 2014	0.714 (0.521, 0.908)	15/21
De Biase 2018	0.578 (0.472, 0.685)	48/83
Fan 2020	0.904 (0.840, 0.967)	75/83
Fu 2020	0.750 (0.622, 0.878)	33/44
Hayashida 2013	0.905 (0.779, 1.000)	19/21
Himbert 2012	0.969 (0.883, 1.000)	15/15
Husso 2021	0.786 (0.707, 0.866)	81/103
Kochman 2020	0.625 (0.431, 0.819)	15/24
Kochman1 2014	0.714 (0.547, 0.882)	20/28
Kumar 2021	0.700 (0.536, 0.864)	21/30
Liao 2018	0.920 (0.862, 0.977)	80/87
Pineda 2020	0.660 (0.529, 0.791)	33/50
Tsai 2021	0.500 (0.359, 0.641)	24/48
Waksman 2020	0.246 (0.138, 0.354)	15/61
Watanabe 2015	0.727 (0.464, 0.990)	8/11
Yoon 2020	0.712 (0.684, 0.739)	736/1034

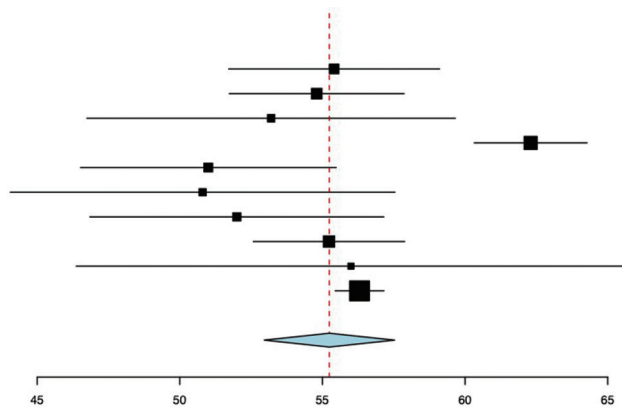
**Overall (I<sup>2</sup>=9269 %, P<0.001) 0.718 (0.634, 0.802) 1238/1743**

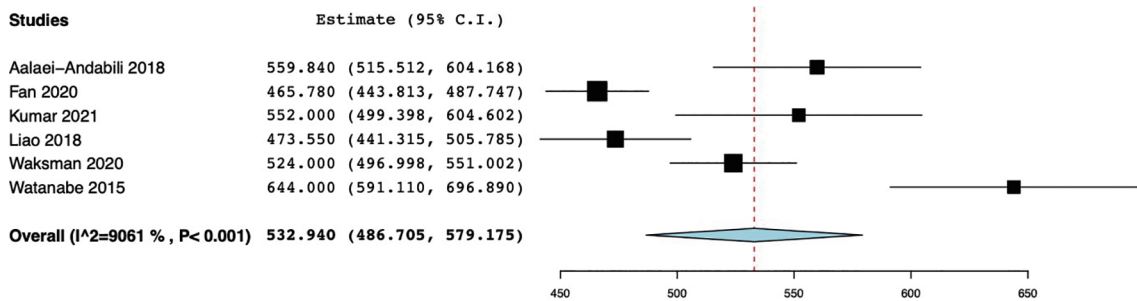
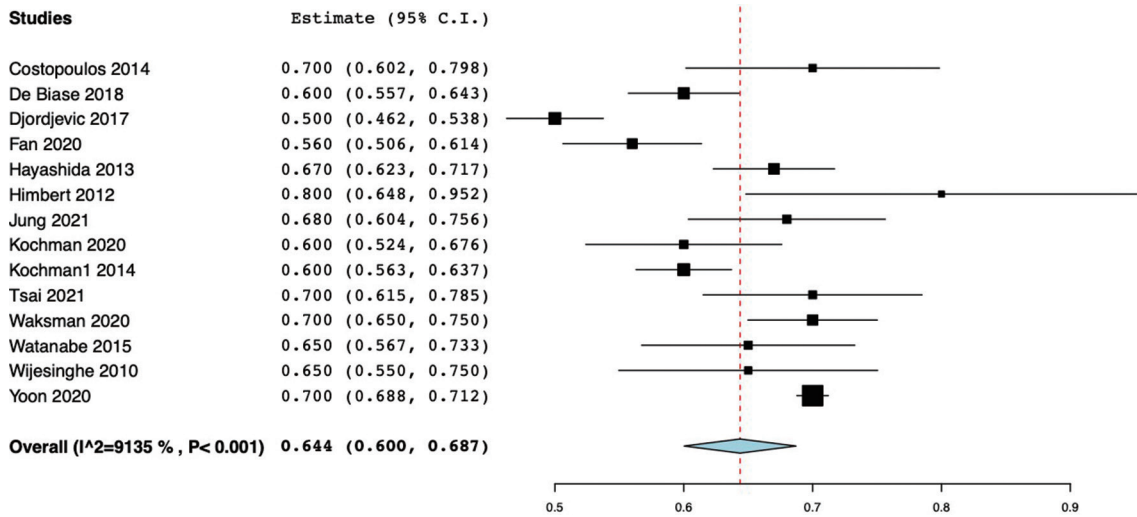
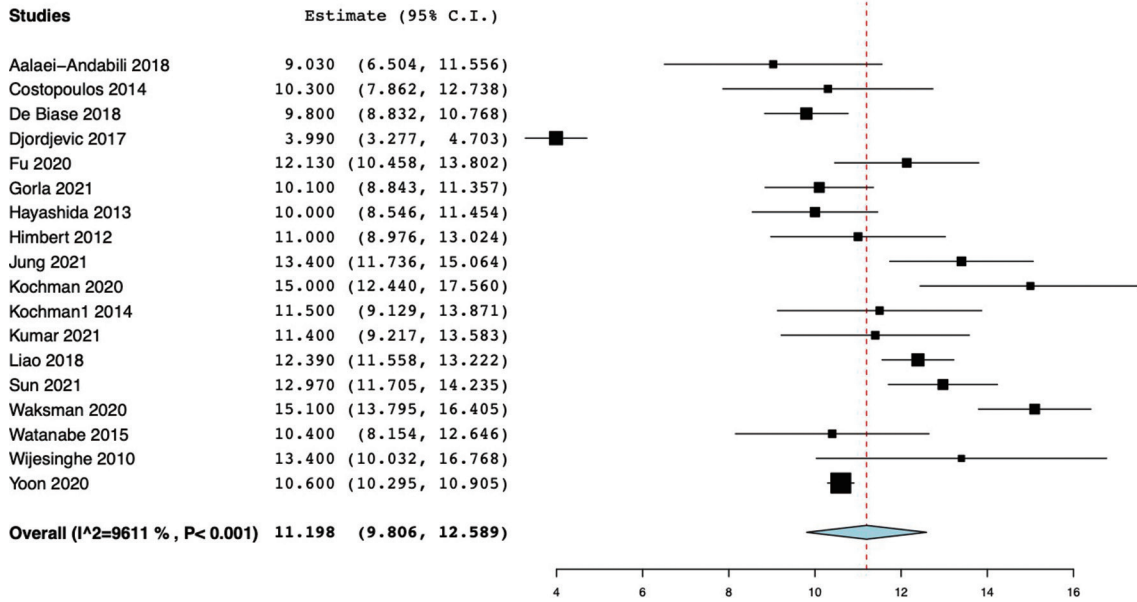


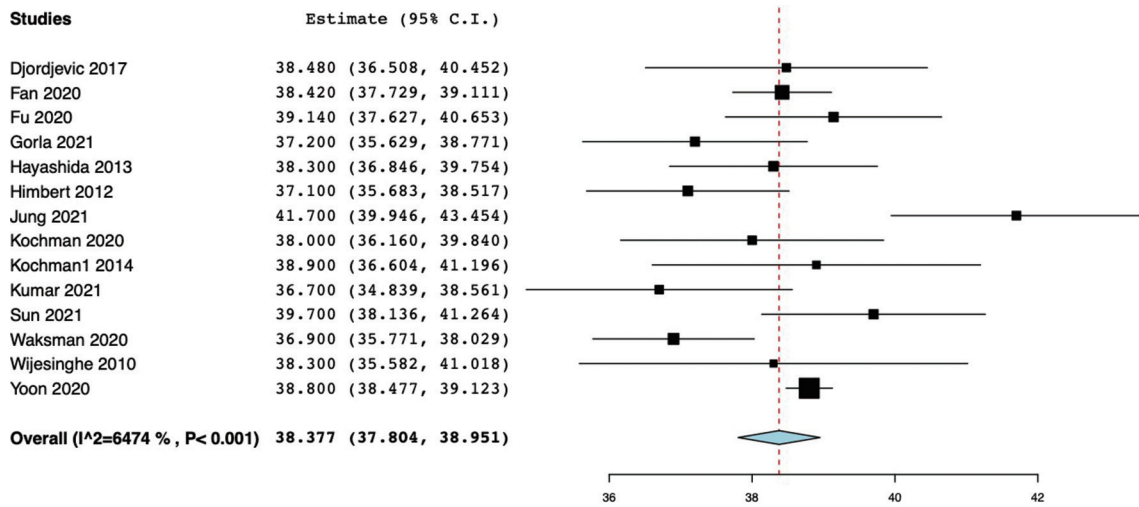
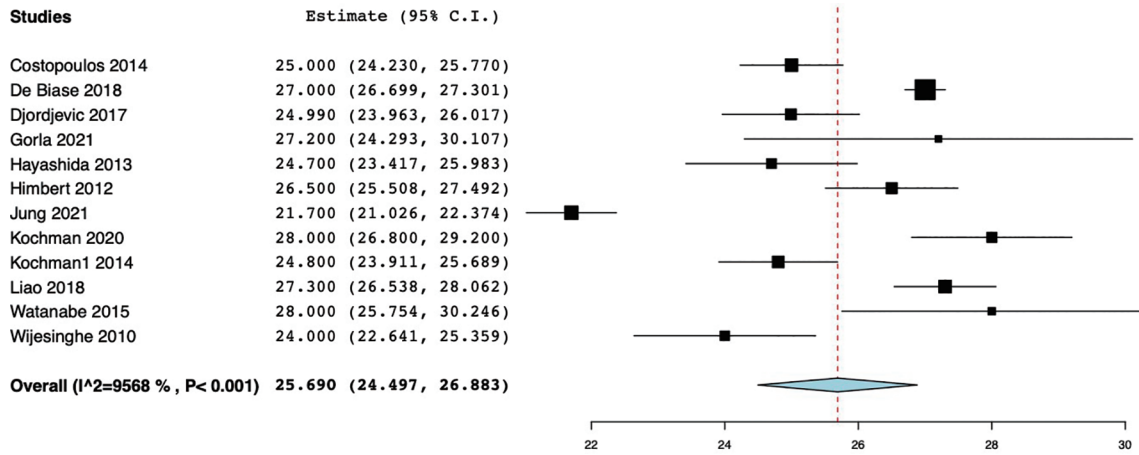
**Studies** Estimate (95% C.I.)

Fu 2020	55.410 (51.717, 59.103)
Gorla 2021	54.800 (51.736, 57.864)
Hayashida 2013	53.200 (46.742, 59.658)
Jung 2021	62.300 (60.322, 64.278)
Kochman 2020	51.000 (46.519, 55.481)
Kochman1 2014	50.800 (44.059, 57.541)
Kumar 2021	52.000 (46.847, 57.153)
Liao 2018	55.230 (52.575, 57.885)
Wijesinghe 2010	56.000 (46.367, 65.633)
Yoon 2020	56.300 (55.447, 57.153)

**Overall (I<sup>2</sup>=8128 %, P<0.001) 55.244 (52.959, 57.529)**



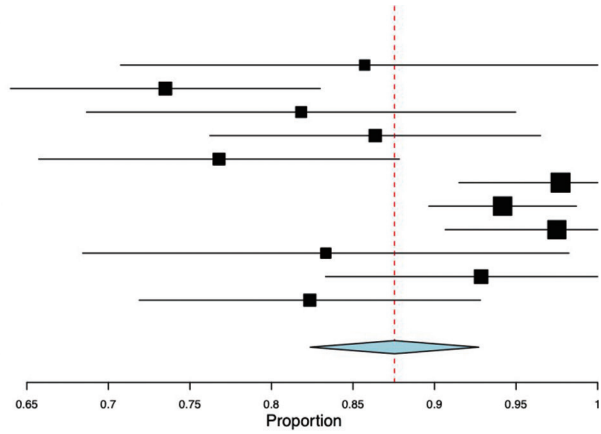




**Figure S1** Forest plots of included studies comparing baseline characteristics: (A) age; (B) male sex; (C) STS-PROM score; (D) NYHA class III/IV; (E) LVEF; (F) mean aortic gradient; (G) aortic valve area; (H) aortic annulus area; (I) mean aortic annulus diameter; (J) ascending aortic size. STS-PROM, Society of Thoracic Surgery-Predicted Risk of Mortality Score; NYHA, New York Heart Association; LVEF, left ventricular ejection fraction; CI, confidence interval; Ev/Trt, events/total patients in treatment group.

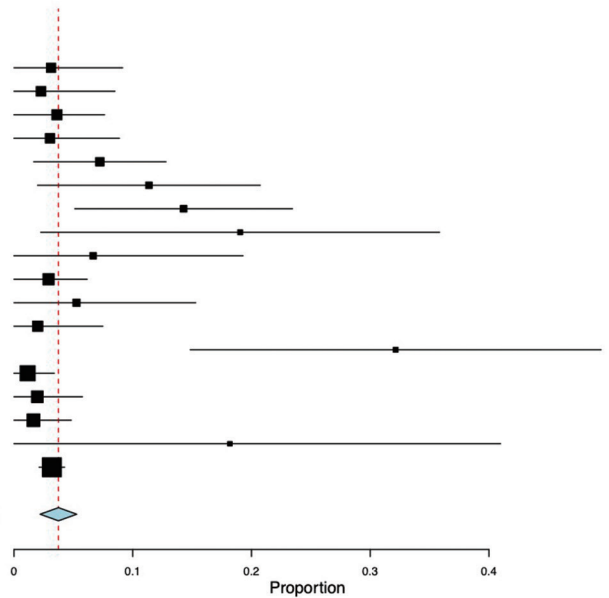
Studies	Estimate (95% C.I.)	Ev/Trt
Costopoulos 2014	0.857 (0.707, 1.000)	18/21
De Biase 2018	0.735 (0.640, 0.830)	61/83
Djordjevic 2017	0.818 (0.687, 0.950)	27/33
Fu 2020	0.864 (0.762, 0.965)	38/44
Gorla 2021	0.768 (0.657, 0.878)	43/56
Hayashida 2013	0.977 (0.915, 1.000)	21/21
Husso 2021	0.942 (0.897, 0.987)	97/103
Jung 2021	0.975 (0.907, 1.000)	19/19
Kochman 2020	0.833 (0.684, 0.982)	20/24
Kochman1 2014	0.929 (0.833, 1.000)	26/28
Sun 2021	0.824 (0.719, 0.928)	42/51

**Overall (I<sup>2</sup>=7230 %, P< 0.001) 0.875 (0.824, 0.927) 412/483**



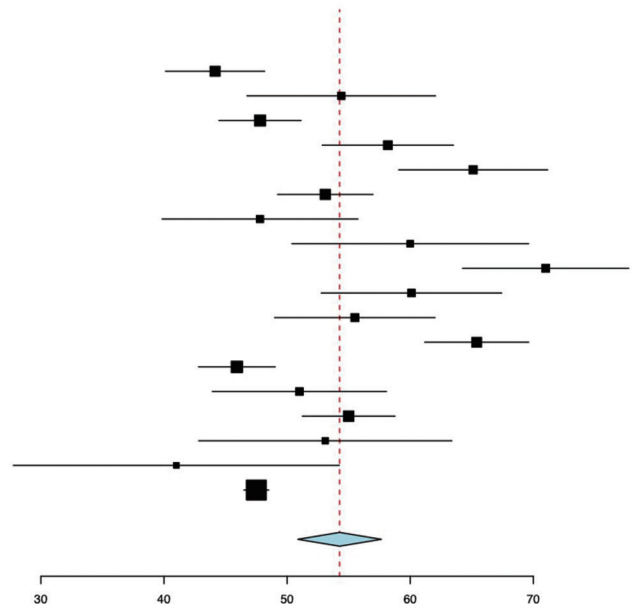
Studies	Estimate (95% C.I.)	Ev/Trt
Aalaei-Andabili 2018	0.031 (0.000, 0.092)	1/32
Costopoulos 2014	0.023 (0.000, 0.085)	0/21
De Biase 2018	0.036 (0.000, 0.076)	3/83
Djordjevic 2017	0.030 (0.000, 0.089)	1/33
Fan 2020	0.072 (0.017, 0.128)	6/83
Fu 2020	0.114 (0.020, 0.207)	5/44
Gorla 2021	0.143 (0.051, 0.235)	8/56
Hayashida 2013	0.190 (0.023, 0.358)	4/21
Himbert 2012	0.067 (0.000, 0.193)	1/15
Husso 2021	0.029 (0.000, 0.062)	3/103
Jung 2021	0.053 (0.000, 0.153)	1/19
Kochman 2020	0.020 (0.000, 0.075)	0/24
Kochman1 2014	0.321 (0.148, 0.494)	9/28
Liao 2018	0.011 (0.000, 0.034)	1/87
Sun 2021	0.020 (0.000, 0.058)	1/51
Waksman 2020	0.016 (0.000, 0.048)	1/61
Wijesinghe 2010	0.182 (0.000, 0.410)	2/11
Yoon 2020	0.032 (0.021, 0.043)	33/1034

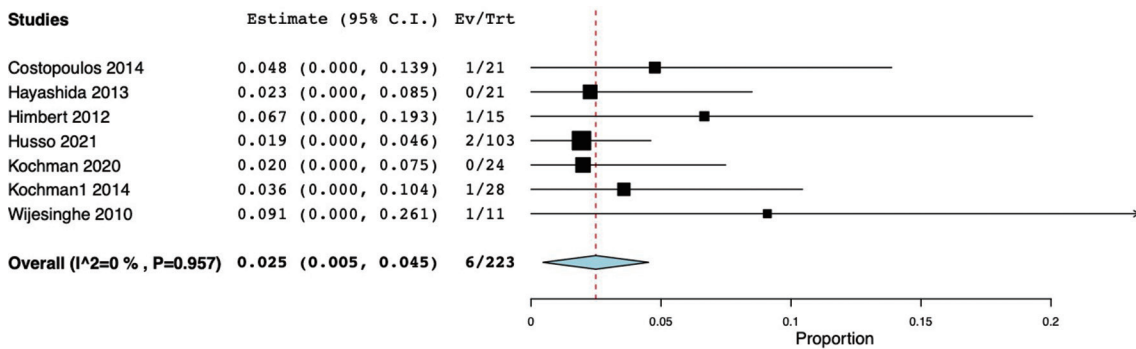
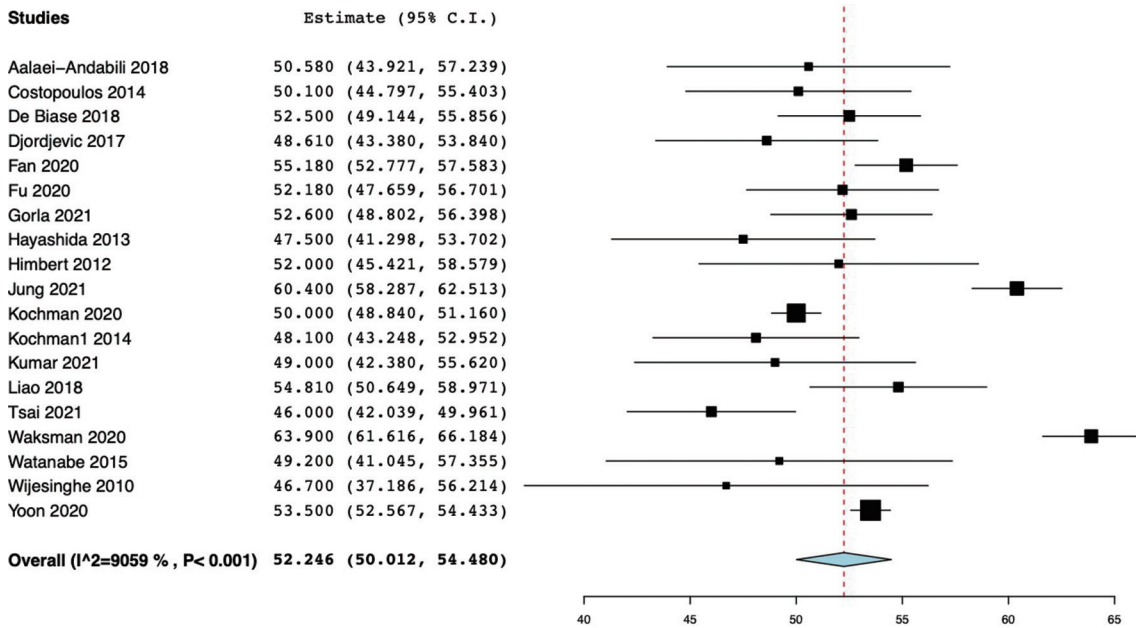
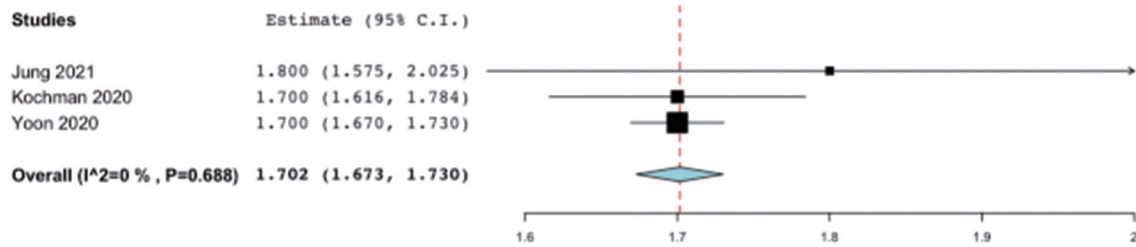
**Overall (I<sup>2</sup>=4631 %, P=0.017) 0.037 (0.022, 0.053) 80/1806**



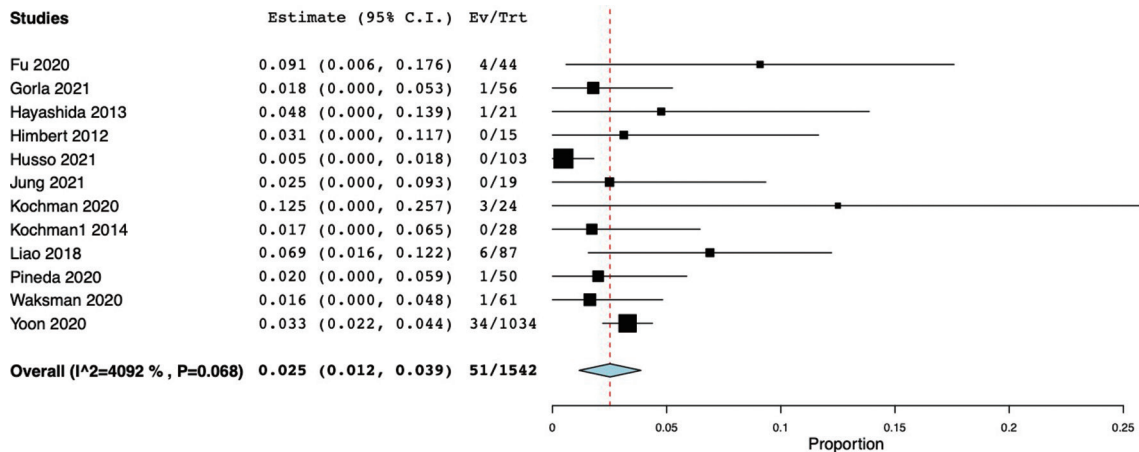
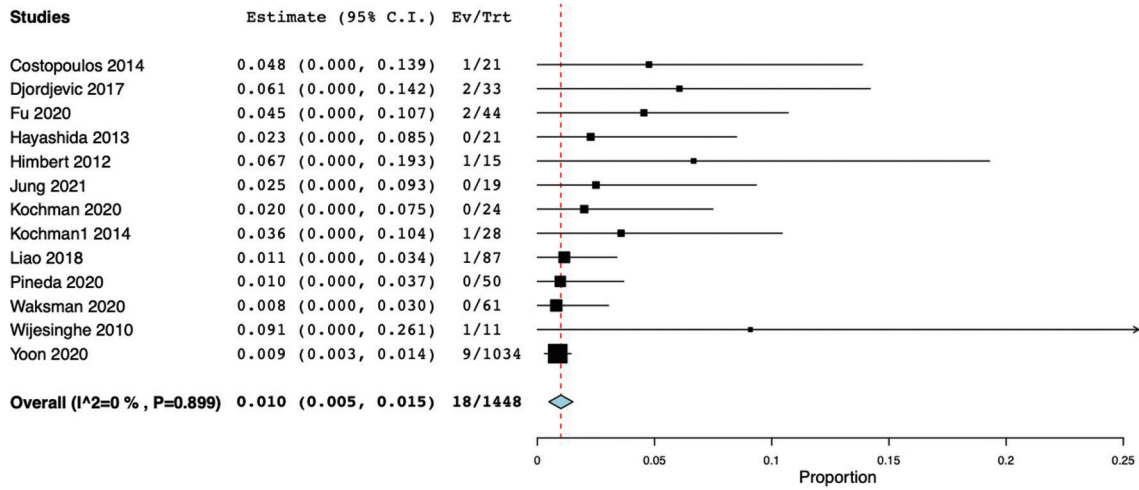
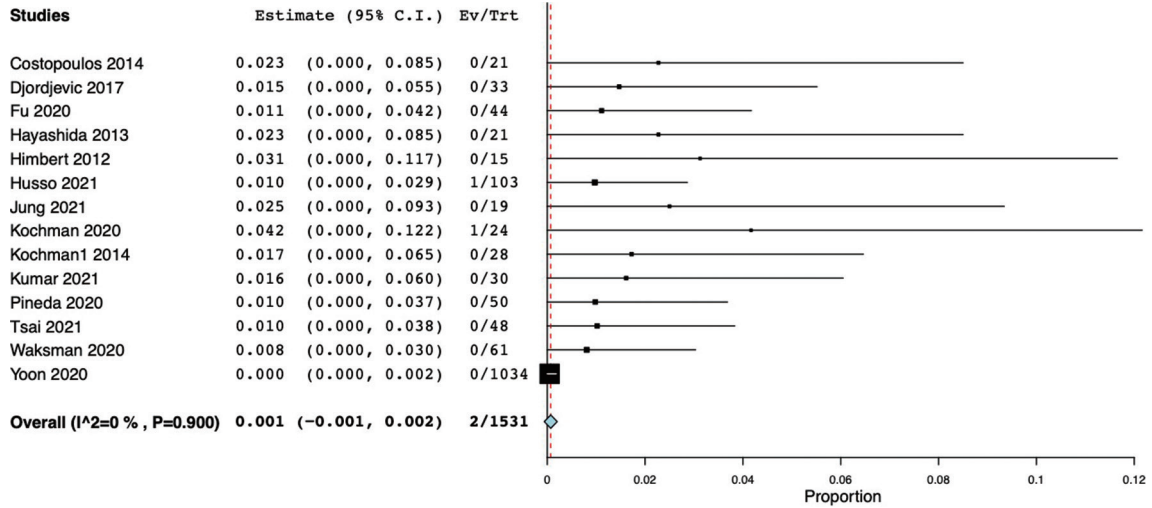
Studies	Estimate (95% C.I.)
Aalaei-Andabili 2018	44.150 (40.120, 48.180)
Costopoulos 2014	54.400 (46.744, 62.056)
De Biase 2018	47.800 (44.465, 51.135)
Fan 2020	58.180 (52.853, 63.507)
Fu 2020	65.110 (59.062, 71.158)
Gorla 2021	53.100 (49.224, 56.976)
Hayashida 2013	47.800 (39.845, 55.755)
Himbert 2012	60.000 (50.385, 69.615)
Jung 2021	71.000 (64.255, 77.745)
Kochman 2020	60.100 (52.775, 67.425)
Kochman1 2014	55.500 (48.981, 62.019)
Liao 2018	65.400 (61.176, 69.624)
Pineda 2020	45.920 (42.807, 49.033)
Tsai 2021	51.000 (43.928, 58.072)
Waksman 2020	55.000 (51.236, 58.764)
Watanabe 2015	53.100 (42.817, 63.383)
Wijesinghe 2010	41.000 (27.763, 54.237)
Yoon 2020	47.500 (46.494, 48.506)

**Overall (I<sup>2</sup>=9097 %, P< 0.001) 54.264 (50.869, 57.658)**



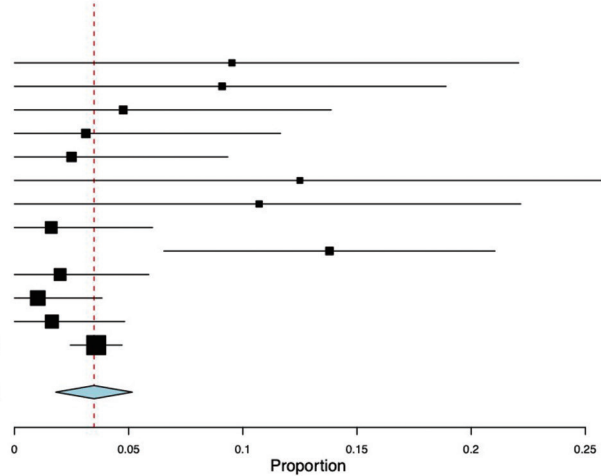


**Figure S2** Forest plots of included studies comparing post-procedural outcomes: (A) device success; (B) moderate/severe PVL; (C) mean aortic gradient; (D) effective orifice area; (E) LVEF; (F) device migration. PVL, paravalvular leak; LVEF, left ventricular ejection fraction; CI, confidence interval; Ev/Trt, events/total patients in treatment group.

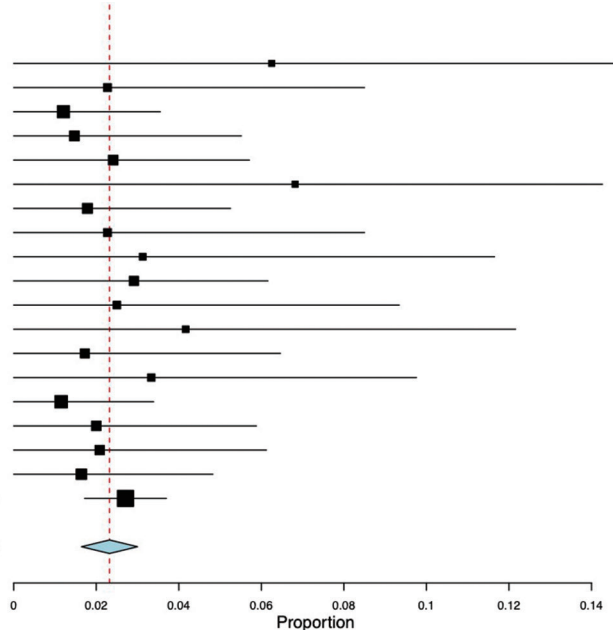




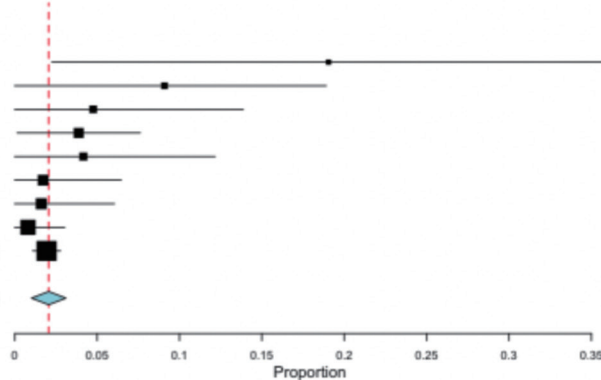
Studies	Estimate (95% C.I.)	Ev/Trt
Costopoulos 2014	0.095 (0.000, 0.221)	2/21
Djordjevic 2017	0.091 (0.000, 0.189)	3/33
Hayashida 2013	0.048 (0.000, 0.139)	1/21
Himbert 2012	0.031 (0.000, 0.117)	0/15
Jung 2021	0.025 (0.000, 0.093)	0/19
Kochman 2020	0.125 (0.000, 0.257)	3/24
Kochman1 2014	0.107 (0.000, 0.222)	3/28
Kumar 2021	0.016 (0.000, 0.060)	0/30
Liao 2018	0.138 (0.065, 0.210)	12/87
Pineda 2020	0.020 (0.000, 0.059)	1/50
Tsai 2021	0.010 (0.000, 0.038)	0/48
Waksman 2020	0.016 (0.000, 0.048)	1/61
Yoon 2020	0.036 (0.024, 0.047)	37/1034
<b>Overall (I<sup>2</sup>=3597 %, P=0.095)</b>	<b>0.035 (0.018, 0.052)</b>	<b>63/1471</b>

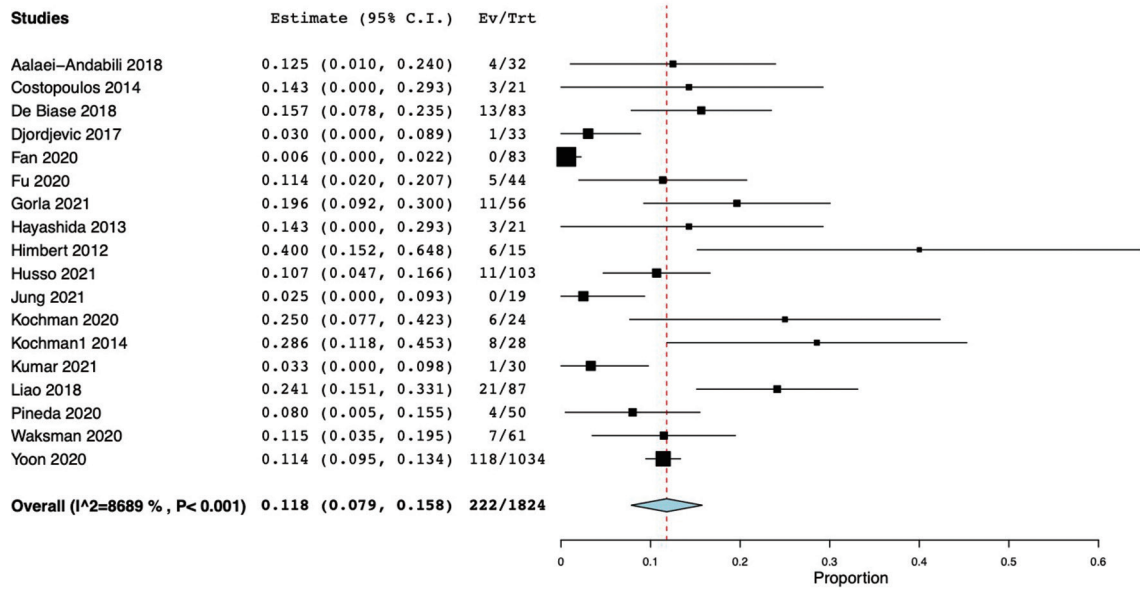


Studies	Estimate (95% C.I.)	Ev/Trt
Aalaeei-Andabili 2018	0.062 (0.000, 0.146)	2/32
Costopoulos 2014	0.023 (0.000, 0.085)	0/21
De Biase 2018	0.012 (0.000, 0.036)	1/83
Djordjevic 2017	0.015 (0.000, 0.055)	0/33
Fan 2020	0.024 (0.000, 0.057)	2/83
Fu 2020	0.068 (0.000, 0.143)	3/44
Gorla 2021	0.018 (0.000, 0.053)	1/56
Hayashida 2013	0.023 (0.000, 0.085)	0/21
Himbert 2012	0.031 (0.000, 0.117)	0/15
Husso 2021	0.029 (0.000, 0.062)	3/103
Jung 2021	0.025 (0.000, 0.093)	0/19
Kochman 2020	0.042 (0.000, 0.122)	1/24
Kochman1 2014	0.017 (0.000, 0.065)	0/28
Kumar 2021	0.033 (0.000, 0.098)	1/30
Liao 2018	0.011 (0.000, 0.034)	1/87
Pineda 2020	0.020 (0.000, 0.059)	1/50
Tsai 2021	0.021 (0.000, 0.061)	1/48
Waksman 2020	0.016 (0.000, 0.048)	1/61
Yoon 2020	0.027 (0.017, 0.037)	28/1034
<b>Overall (I<sup>2</sup>=0 %, P=0.997)</b>	<b>0.023 (0.016, 0.030)</b>	<b>46/1872</b>



Studies	Estimate (95% C.I.)	Ev/Trt
Costopoulos 2014	0.190 (0.023, 0.358)	4/21
Djordjevic 2017	0.091 (0.000, 0.189)	3/33
Hayashida 2013	0.048 (0.000, 0.139)	1/21
Husso 2021	0.039 (0.002, 0.076)	4/103
Kochman 2020	0.042 (0.000, 0.122)	1/24
Kochman1 2014	0.017 (0.000, 0.065)	0/28
Kumar 2021	0.016 (0.000, 0.060)	0/30
Waksman 2020	0.008 (0.000, 0.030)	0/61
Yoon 2020	0.019 (0.011, 0.028)	20/1034
<b>Overall (I<sup>2</sup>=855 %, P=0.364)</b>	<b>0.021 (0.010, 0.031)</b>	<b>33/1355</b>





**Figure S3** Forest plots of included studies comparing clinical outcomes: (A) coronary obstruction; (B) conversion to surgery; (C) major vascular complications; (D) major bleeding; (E) stroke; (F) acute kidney injury; (G) new PPI. PPI, permanent pacemaker insertion; CI, confidence interval; Ev/Trt, events/total patients in treatment group.