

Supplemental material

Supplemental Table 1: Clinical outcomes during follow up in the unmatched population.

FU: follow up; AF atrial fibrillation; VF ventricular fibrillation; VT ventricular tachycardia; HF= heart failure; ICD= Implantable cardiac defibrillator; MI: myocardial infarction.

Supplemental Table 2. Clinical outcomes during follow-up in the unmatched population after conventional co-variable adjusted analysis.

FU: follow up; AF atrial fibrillation; VF ventricular fibrillation; VT ventricular tachycardia; HF= heart failure; ICD= Implantable cardiac defibrillator; MI: myocardial infarction.

Supplemental Table 3. Baseline characteristics of unmatched and matched cohorts (with matching including previous endocarditis).

Values are n (%), mean±SD or median (IQR) for year of inclusion. CABG=coronary artery bypass graft; COPD = chronic obstructive pulmonary disease; ICD= Implantable cardiac defibrillator; IQR= interquartile range; MI= myocardial infarction; PS= propensity score; PCI=percutaneous coronary intervention; SD=standard deviation

Supplemental Table 4. Clinical outcomes during follow-up in the matched population (with matching including previous endocarditis).

FU: follow up; AF atrial fibrillation; VF ventricular fibrillation; VT ventricular tachycardia; HF= heart failure; ICD= Implantable cardiac defibrillator; MI: myocardial infarction.

Supplemental Table 5. Clinical outcomes during follow-up in the matched population during the first 3 months.

FU: follow up; AF atrial fibrillation; VF ventricular fibrillation; VT ventricular tachycardia; HF= heart failure; ICD= Implantable cardiac defibrillator; MI: myocardial infarction.

Supplemental Table 6. Clinical outcomes during follow-up in the matched population after the first 3 months.

FU: follow up; AF atrial fibrillation; VF ventricular fibrillation; VT ventricular tachycardia; HF= heart failure; ICD= Implantable cardiac defibrillator; MI: myocardial infarction.

Supplemental Table 7. Interaction between subgroups for all-cause death incidence according to isolated mitral valve surgery or mitral transcatheter edge-to-edge repair.

MR: mitral regurgitation

Supplemental Table 8. Interaction between subgroups for cardiovascular death incidence according to isolated mitral valve surgery or mitral transcatheter edge-to-edge repair.

MR: mitral regurgitation

Supplemental Table 9. Baseline characteristics of unmatched and matched patients treated with surgical mitral valve repair (excluding patients with mitral valve replacement) or mitral transcatheter edge-to-edge repair

Values are n (%), mean±SD or median (IQR) for year of inclusion. CABG=coronary artery bypass graft; COPD = chronic obstructive pulmonary disease; ICD= Implantable cardiac defibrillator; IQR= interquartile range; MI= myocardial infarction; PS= propensity score; PCI=percutaneous coronary intervention; SD=standard deviation

Supplemental Table 10. Clinical outcomes during FU in the matched population of patients treated with surgical mitral valve repair (excluding patients with mitral valve replacement) or mitral transcatheter edge-to-edge repair

FU: follow up; AF atrial fibrillation; VF ventricular fibrillation; VT ventricular tachycardia; HF= heart failure; ICD= Implantable cardiac defibrillator; MI: myocardial infarction.

Supplemental Table 1. Clinical outcomes during FU in the unmatched population.

	Isolated mitral valve surgery (n=52289)			Mitral transcatheter edge-to-edge repair (n=4741)			Hazard ratio (95% CI)	p value	p (corrected by Bonferroni)
	Person-time (patient.year)	Number of events	Incidence, %/year (95% CI)	Person-time (patient.year)	Number of events	Incidence, %/year (95% CI)			
All-cause death	135729	8463	6.24 (6.10-6.37)	4549	812	17.85 (16.62-19.08)	2.017 (1.874-2.171)	<0.0001	<0.0001
Cardiovascular death	135729	4889	3.60 (3.50-3.70)	4549	398	8.75 (7.89-9.61)	1.320 (1.191-1.464)	<0.0001	<0.0001
Non-cardiovascular death	135729	3574	2.63 (2.55-2.72)	4549	414	9.10 (8.22-9.98)	3.974 (3.571-4.423)	<0.0001	<0.0001
Pulmonary edema during FU	134282	1174	0.87 (0.82-0.92)	4495	136	3.03 (2.52-3.53)	2.912 (2.425-3.496)	<0.0001	<0.0001
Incident AF	128408	3231	2.52 (2.43-2.60)	4400	217	4.93 (4.28-5.59)	1.358 (1.181-1.560)	<0.0001	<0.0001
VF / sustained VT / cardiac arrest	133674	1595	1.19 (1.14-1.25)	4497	114	2.54 (2.07-3.00)	1.848 (1.522-2.243)	<0.0001	<0.0001
Pacemaker or ICD	122626	5828	4.75 (4.63-4.88)	4327	289	6.68 (5.91-7.45)	0.914 (0.811-1.029)	0.14	0.55
Ischemic stroke	132468	2029	1.53 (1.47-1.60)	4494	93	2.07 (1.65-2.49)	1.233 (0.998-1.522)	0.05	0.21
Incident MI	134553	702	0.52 (0.48-0.56)	4512	40	0.89 (0.61-1.16)	1.773 (1.280-2.455)	0.0006	0.002
Endocarditis	133414	1366	1.02 (0.97-1.08)	4503	68	1.51 (1.15-1.87)	1.151 (0.899-1.472)	0.26	1
Major bleeding during FU	128501	3155	2.46 (2.37-2.54)	4410	188	4.26 (3.65-4.87)	1.305 (1.124-1.514)	0.0005	0.002
Cardiovascular death / Pulmonary edema during FU	134236	5750	4.28 (4.17-4.39)	4491	489	10.89 (9.92-11.85)	1.453 (1.323-1.595)	<0.0001	<0.0001
All-cause death / hospitalisation for HF / AF or ischemic stroke during FU	124324	12814	10.31 (10.13-10.49)	4295	1062	24.73 (23.24-26.21)	1.684 (1.580-1.795)	<0.0001	<0.0001

Supplemental Table 2. Clinical outcomes during follow-up in the unmatched population after conventional multivariable adjusted analysis (Cox model).

	Isolated mitral valve surgery (n=52289)			Mitral transcatheter edge-to-edge repair (n=4741)			Hazard ratio (95% CI)	p value	p (corrected by Bonferroni)
	Person-time (patient.year)	Number of events	Incidence, %/year (95% CI)	Person-time (patient.year)	Number of events	Incidence, %/year (95% CI)			
All-cause death	135729	8463	6.24 (6.10-6.37)	4549	812	17.85 (16.62-19.08)	0.983 (0.903-1.069)	0.68	1
Cardiovascular death	135729	4889	3.60 (3.50-3.70)	4549	398	8.75 (7.89-9.61)	0.782 (0.697-0.878)	<0.0001	<0.0001
Non-cardiovascular death	135729	3574	2.63 (2.55-2.72)	4549	414	9.10 (8.22-9.98)	1.387 (1.225-1.570)	<0.0001	<0.0001
Pulmonary edema during FU	134282	1174	0.87 (0.82-0.92)	4495	136	3.03 (2.52-3.53)	1.512 (1.218-1.876)	0.0002	0.0008
Incident AF	128408	3231	2.52 (2.43-2.60)	4400	217	4.93 (4.28-5.59)	0.675 (0.576-0.790)	<0.0001	<0.0001
VF / sustained VT / cardiac arrest	133674	1595	1.19 (1.14-1.25)	4497	114	2.54 (2.07-3.00)	1.205 (0.970-1.498)	0.09	0.37
Pacemaker or ICD	122626	5828	4.75 (4.63-4.88)	4327	289	6.68 (5.91-7.45)	0.566 (0.498-0.644)	<0.0001	<0.0001
Ischemic stroke	132468	2029	1.53 (1.47-1.60)	4494	93	2.07 (1.65-2.49)	0.667 (0.531-0.837)	0.0005	0.002
Incident MI	134553	702	0.52 (0.48-0.56)	4512	40	0.89 (0.61-1.16)	1.001 (0.698-1.435)	1.00	1
Endocarditis	133414	1366	1.02 (0.97-1.08)	4503	68	1.51 (1.15-1.87)	0.585 (0.448-0.763)	<0.0001	<0.0001
Major bleeding during FU	128501	3155	2.46 (2.37-2.54)	4410	188	4.26 (3.65-4.87)	0.985 (0.835-1.163)	0.86	1
Cardiovascular death / Pulmonary edema during FU	134236	5750	4.28 (4.17-4.39)	4491	489	10.89 (9.92-11.85)	0.853 (0.768-0.948)	0.003	0.01
All-cause death / hospitalisation for HF / AF or ischemic stroke during FU	124324	12814	10.31 (10.13-10.49)	4295	1062	24.73 (23.24-26.21)	0.865 (0.804-0.929)	<0.0001	<0.0001

Supplemental Table 3. Baseline characteristics of unmatched and matched patients (propensity score matching including infectious endocarditis).

	Before PS matching				After PS matching			
	Isolated mitral valve surgery	Mitral transcatheter edge-to-edge repair	P	Standardized difference	Isolated mitral valve surgery	Mitral transcatheter edge-to-edge repair	P	Standardized difference
	(n=52289)	(n=4741)		(%)	(n=2071)	(n=2071)		(%)
Age (years), mean±SD	65.9±12.3	79.7±9.2	<0.0001	113.6	75.9±8.8	75.9±8.8	1.00	0.0
Sex (male), n (%)	32153 (61.5)	2727 (57.5)	<0.0001	-8.1	1191 (57.5)	1178 (56.9)	0.68	-1.3
Hypertension, n (%)	27954 (53.5)	3388 (71.5)	<0.0001	36.4	1424 (68.8)	1393 (67.3)	0.30	-3.2
Diabetes mellitus, n (%)	7577 (14.5)	926 (19.5)	<0.0001	14.2	385 (18.6)	374 (18.1)	0.66	-1.4
Heart failure, n (%)	33784 (64.6)	4026 (84.9)	<0.0001	43.3	1674 (80.8)	1657 (80.0)	0.51	-2.1
History of pulmonary edema, n (%)	10887 (20.8)	617 (13.0)	<0.0001	-19.5	363 (17.5)	332 (16.0)	0.20	-4.0
Valve disease, n (%)	52179 (99.8)	4737 (99.9)	0.07	2.9	2068 (99.9)	2070 (100.0)	0.32	2.9
Aortic stenosis, n (%)	7911 (15.1)	742 (15.7)	0.34	1.4	337 (16.3)	342 (16.5)	0.83	0.6
Aortic regurgitation, n (%)	7205 (13.8)	626 (13.2)	0.27	-1.7	274 (13.2)	308 (14.9)	0.13	4.7
Mitral regurgitation, n (%)	51264 (98.0)	4692 (99.0)	<0.0001	6.8	2050 (99.0)	2044 (98.7)	0.38	-2.7
Previous endocarditis, n (%)	5977 (11.4)	119 (2.5)	<0.0001	-29.0	77 (3.7)	78 (3.8)	0.93	0.3
Dilated cardiomyopathy, n (%)	7132 (13.6)	1193 (25.2)	<0.0001	32.8	445 (21.5)	441 (21.3)	0.88	-0.5
Coronary artery disease, n (%)	19870 (38.0)	2584 (54.5)	<0.0001	33.9	1062 (51.3)	1048 (50.6)	0.66	-1.4
Previous MI, n (%)	3718 (7.1)	593 (12.5)	<0.0001	20.5	245 (11.8)	228 (11.0)	0.41	-2.6
Previous PCI, n (%)	3498 (6.7)	1120 (23.6)	<0.0001	63.0	345 (16.7)	358 (17.3)	0.59	1.7
Previous CABG, n (%)	7666 (14.7)	150 (3.2)	<0.0001	-33.6	122 (5.9)	125 (6.0)	0.84	0.6
Vascular disease, n (%)	10453 (20.0)	1615 (34.1)	<0.0001	34.6	648 (31.3)	649 (31.3)	0.97	0.1
Atrial fibrillation, n (%)	34072 (65.2)	3328 (70.2)	<0.0001	10.6	1485 (71.7)	1496 (72.2)	0.70	1.2
Previous pacemaker or ICD, n (%)	4748 (9.1)	1069 (22.6)	<0.0001	44.9	370 (17.9)	355 (17.1)	0.54	-1.9
Ischemic stroke, n (%)	2677 (5.1)	207 (4.4)	0.02	-3.4	96 (4.6)	99 (4.8)	0.83	0.7
Intracranial bleeding, n (%)	858 (1.6)	91 (1.9)	0.15	2.2	39 (1.9)	44 (2.1)	0.58	1.7
Smoker, n (%)	8073 (15.4)	754 (15.9)	0.4	1.3	337 (16.3)	298 (14.4)	0.09	-5.2
Dyslipidaemia, n (%)	14908 (28.5)	1779 (37.5)	<0.0001	19.8	746 (36.0)	727 (35.1)	0.54	-1.9
Obesity, n (%)	9156 (17.5)	965 (20.4)	<0.0001	7.4	430 (20.8)	454 (21.9)	0.36	2.8

Alcohol related diagnoses, n (%)	2845 (5.4)	268 (5.7)	0.54	0.9	124 (6.0)	136 (6.6)	0.44	2.4
Chronic kidney disease, n (%)	4460 (8.5)	1084 (22.9)	<0.0001	48.8	345 (16.7)	349 (16.9)	0.87	0.5
Lung disease, n (%)	8162 (15.6)	1083 (22.8)	<0.0001	19.6	439 (21.2)	474 (22.9)	0.19	4.1
Sleep apnoea syndrome, n (%)	3854 (7.4)	577 (12.2)	<0.0001	18.0	246 (11.9)	261 (12.6)	0.48	2.2
COPD, n (%)	4701 (9.0)	710 (15.0)	<0.0001	20.5	273 (13.2)	290 (14.0)	0.44	2.4
Liver disease, n (%)	3373 (6.5)	386 (8.1)	<0.0001	6.8	185 (8.9)	170 (8.2)	0.41	-2.6
Thyroid diseases, n (%)	5318 (10.2)	796 (16.8)	<0.0001	21.4	351 (17.0)	325 (15.7)	0.27	-3.4
Inflammatory disease, n (%)	3441 (6.6)	613 (12.9)	<0.0001	24.8	226 (10.9)	230 (11.1)	0.84	0.6
Anaemia, n (%)	13762 (26.3)	1545 (32.6)	<0.0001	14.2	670 (32.4)	637 (30.8)	0.27	-3.4
Previous cancer, n (%)	4220 (8.1)	857 (18.1)	<0.0001	35.3	309 (14.9)	326 (15.7)	0.46	2.3
Poor nutrition, n (%)	6317 (12.1)	1293 (27.3)	<0.0001	45.0	473 (22.8)	473 (22.8)	1.00	0.0
Cognitive impairment, n (%)	494 (0.9)	162 (3.4)	<0.0001	23.3	38 (1.8)	50 (2.4)	0.20	4.0
Cardiorenal syndrome, n (%)	3.1±2.8	4.2±2.7	<0.0001	37.3	3.8±2.7	3.8±2.6	0.45	2.3
Frailty index, mean±SD	7.0±7.6	9.4±8.6	<0.0001	30.6	9.0±8.4	8.8±8.4	0.32	-3.1
EuroSCORE II, mean±SD	3.3±1.3	4.0±1.2	<0.0001	54.8	3.9±1.2	3.9±1.2	0.39	2.7
Year of inclusion, median (IQR)	2017 (2014-2019)	2020 (2019-2021)	<0.0001	108.2	2020 (2018-2021)	2020 (2018-2021)	1	0.0
PCI in the 2 months pre-procedure, n (%)	1051 (2.0)	326 (6.9)	<0.0001	31.8	88 (4.3)	105 (5.1)	0.21	3.9
PCI in the 2 months post-procedure, n (%)	478 (0.9)	56 (1.2)	0.07	2.8	41 (2.0)	26 (1.3)	0.06	-5.7

Supplemental Table 4. Clinical outcomes during follow-up in the matched population (propensity score matching including infectious endocarditis).

	Isolated mitral valve surgery (n=2071)			Mitral transcatheter edge-to-edge repair (n=2071)			Hazard ratio (95% CI)	p value	P (corrected by Bonferroni)
	Person-time (patient.year)	Number of events	Incidence, %/year (95% CI)	Person-time (patient.year)	Number of events	Incidence, %/year (95% CI)			
All-cause death	2012	326	16.21 (14.45-17.97)	2162	343	15.87 (14.19-17.54)	1.024 (0.879-1.192)	0.76	1
Cardiovascular death	2012	210	10.44 (9.03-11.85)	2162	163	7.54 (6.38-8.70)	0.769 (0.626-0.944)	0.01	0.05
Non-cardiovascular death	2012	116	5.77 (4.72-6.82)	2162	180	8.33 (7.11-9.54)	1.479 (1.170-1.869)	0.001	0.004
Pulmonary edema during FU	1992	22	1.10 (0.64-1.57)	2141	61	2.85 (2.13-3.56)	2.605 (1.599-4.243)	0.0001	0.0004
Incident AF	1907	103	5.40 (4.36-6.44)	2087	88	4.22 (3.34-5.10)	0.811 (0.609-1.078)	0.15	0.59
VF / sustained VT / cardiac arrest	1996	27	1.35 (0.84-1.86)	2137	53	2.48 (1.81-3.15)	1.860 (1.170-2.958)	0.009	0.04
Pacemaker or ICD	1819	224	12.31 (10.70-13.93)	2028	151	7.44 (6.26-8.63)	0.657 (0.534-0.808)	<0.0001	<0.0001
Ischemic stroke	1979	50	2.53 (1.83-3.23)	2141	33	1.54 (1.02-2.07)	0.618 (0.398-0.959)	0.03	0.13
Incident MI	1995	16	0.80 (0.41-1.20)	2156	12	0.56 (0.24-0.87)	0.725 (0.342-1.535)	0.40	1
Endocarditis	1977	46	2.33 (1.66-3.00)	2135	38	1.78 (1.21-2.35)	0.756 (0.492-1.162)	0.20	0.81
Major bleeding during FU	1916	99	5.17 (4.15-6.19)	2097	87	4.15 (3.28-5.02)	0.829 (0.621-1.106)	0.20	0.81
Cardiovascular death / Pulmonary edema during FU	1990	228	11.46 (9.97-12.94)	2140	201	9.39 (8.10-10.69)	0.868 (0.718-1.050)	0.15	0.58
All-cause death / hospitalisation for HF / AF or ischemic stroke during FU	1856	463	24.95 (22.68-27.22)	2049	441	21.52 (19.52-23.53)	0.906 (0.795-1.032)	0.14	0.55

Supplemental Table 5. Clinical outcomes during FU in the matched population during the first 3 months.

	Isolated mitral valve surgery (n=2160)			Mitral transcatheter edge-to-edge repair (n=2160)			Hazard ratio (95% CI)	p value	p (corrected by Bonferroni)
	Person-time (patient.year)	Number of events	Incidence, %/year (95% CI)	Person-time (patient.year)	Number of events	Incidence, %/year (95% CI)			
All-cause death	343	224	65.37 (56.81-73.93)	364	122	33.49 (27.55-39.44)	0.547 (0.438-0.682)	<0.0001	<0.0001
Cardiovascular death	343	195	56.90 (48.92-64.89)	364	80	21.96 (17.15-26.78)	0.418 (0.323-0.543)	<0.0001	<0.0001
Non-cardiovascular death	343	29	8.46 (5.38-11.54)	364	42	11.53 (8.04-15.02)	1.367 (0.851-2.195)	0.20	0.78
Pulmonary edema during FU	343	9	2.63 (0.91-4.34)	364	16	4.40 (2.24-6.55)	1.782 (0.786-4.037)	0.17	0.67
Incident AF	338	45	13.31 (9.42-17.20)	363	23	6.34 (3.75-8.93)	0.500 (0.302-0.827)	0.007	0.03
VF / sustained VT / cardiac arrest	343	9	2.63 (0.91-4.34)	363	17	4.69 (2.46-6.92)	1.936 (0.861-4.349)	0.11	0.44
Pacemaker or ICD	325	149	45.83 (38.47-53.19)	358	57	15.91 (11.78-20.04)	0.400 (0.295-0.543)	<0.0001	<0.0001
Ischemic stroke	341	24	7.03 (4.22-9.84)	364	6	1.65 (0.33-2.97)	0.246 (0.100-0.603)	0.002	0.009
Incident MI	343	2	0.58 (0.00-1.39)	365	3	0.82 (0.00-1.75)	1.488 (0.247-8.952)	0.66	1
Endocarditis	343	8	2.33 (0.72-3.95)	364	7	1.92 (0.50-3.35)	0.810 (0.293-2.234)	0.68	1
Major bleeding during FU	336	45	13.38 (9.47-17.28)	362	25	6.90 (4.20-9.61)	0.545 (0.334-0.889)	0.02	0.06
Cardiovascular death / Pulmonary edema during FU	342	201	58.78 (50.66-66.91)	363	92	25.35 (20.17-30.53)	0.467 (0.365-0.598)	<0.0001	<0.0001
All-cause death / hospitalisation for HF / AF or ischemic stroke during FU	335	288	86.04 (76.10-95.97)	360	155	43.03 (36.26-49.80)	0.535 (0.440-0.651)	<0.0001	<0.0001

Supplemental Table 6. Clinical outcomes during follow-up in the matched population after the first 3 months.

	Isolated mitral valve surgery (n=1135)			Mitral transcatheter edge-to-edge repair (n=1304)			Hazard ratio (95% CI)	p value	p (corrected by Bonferroni)
	Person-time (patient.year)	Number of events	Incidence, %/year (95% CI)	Person-time (patient.year)	Number of events	Incidence, %/year (95% CI)			
All-cause death	1781	136	7.64 (6.35-8.92)	1967	242	12.30 (10.75-13.85)	1.626 (1.317-2.006)	<0.0001	<0.0001
Cardiovascular death	1781	52	2.92 (2.13-3.71)	1967	92	4.68 (3.72-5.63)	1.622 (1.154-2.279)	0.005	0.02
Non-cardiovascular death	1781	84	4.72 (3.71-5.72)	1967	150	7.62 (6.40-8.85)	1.628 (1.246-2.127)	0.0004	0.002
Pulmonary edema during FU	1771	18	1.02 (0.55-1.49)	1941	44	2.27 (1.60-2.94)	2.237 (1.293-3.872)	0.004	0.02
Incident AF	1701	49	2.88 (2.07-3.69)	1890	67	3.55 (2.70-4.39)	1.232 (0.852-1.781)	0.27	1
VF / sustained VT / cardiac arrest	1761	25	1.42 (0.86-1.98)	1936	40	2.07 (1.43-2.71)	1.447 (0.878-2.386)	0.15	0.59
Pacemaker or ICD	1603	78	4.87 (3.79-5.95)	1830	105	5.74 (4.64-6.84)	1.171 (0.874-1.570)	0.29	1
Ischemic stroke	1750	37	2.11 (1.43-2.80)	1938	37	1.91 (1.29-2.53)	0.903 (0.572-1.424)	0.66	1
Incident MI	1773	12	0.68 (0.29-1.06)	1949	14	0.72 (0.34-1.10)	1.068 (0.494-2.309)	0.87	1
Endocarditis	1751	36	2.06 (1.38-2.73)	1937	39	2.01 (1.38-2.65)	0.974 (0.619-1.532)	0.91	1
Major bleeding during FU	1687	54	3.20 (2.35-4.05)	1897	71	3.74 (2.87-4.61)	1.175 (0.825-1.674)	0.37	1
Cardiovascular death / Pulmonary edema during FU	1770	65	3.67 (2.78-4.56)	1940	119	6.13 (5.03-7.24)	1.718 (1.271-2.323)	0.0004	0.002
All-cause death / hospitalisation for HF / AF or ischemic stroke during FU	1664	195	11.72 (10.08-13.37)	1840	315	17.12 (15.23-19.01)	1.473 (1.235-1.757)	<0.0001	<0.0001

Supplemental Table 7. Interaction between subgroups for all-cause death incidence according to isolated mitral valve surgery or mitral transcatheter edge-to-edge repair.

All-cause death	Isolated mitral valve surgery (n=2160)		Mitral transcatheter edge-to-edge repair (n=2160)		Hazard ratio (95% CI)	p value	Hazard ratio for interaction	p value for interaction
	Number of patients	Number of events	Number of patients	Number of events				
Age <75 yrs	744	84	744	124	1.334 (1.011-1.761)	0.04		
Age ≥75 yrs	1416	276	1416	240	0.852 (0.716-1.013)	0.07	0.627 (0.453-0.870)	0.005
Sex (Female)	907	159	901	144	0.858 (0.684-1.075)	0.18		
Sex (Male)	1253	201	1259	220	1.053 (0.870-1.275)	0.60	1.248 (0.929-1.678)	0.14
No Hypertension	709	79	678	114	1.378 (1.033-1.837)	0.03		
Hypertension	1451	281	1482	250	0.847 (0.714-1.005)	0.06	0.614 (0.440-0.857)	0.004
No Diabetes mellitus	1780	269	1741	274	0.982 (0.830-1.162)	0.83		
Diabetes mellitus	380	91	419	90	0.912 (0.680-1.222)	0.54	0.941 (0.672-1.318)	0.72
No Coronary artery disease	1070	146	1095	183	1.180 (0.949-1.467)	0.14		
Coronary artery disease	1090	214	1065	181	0.826 (0.677-1.007)	0.06	0.696 (0.518-0.934)	0.02
No Dilated cardiomyopathy	1687	249	1709	269	1.036 (0.872-1.231)	0.69		
Dilated cardiomyopathy	473	111	451	95	0.817 (0.621-1.075)	0.15	0.787 (0.569-1.087)	0.15
No Atrial fibrillation	592	85	594	92	0.963 (0.716-1.294)	0.80		
Atrial fibrillation	1568	275	1566	272	0.974 (0.824-1.152)	0.76	1.033 (0.736-1.450)	0.85
Charlson <4	1414	144	1370	136	0.924 (0.731-1.169)	0.51		
Charlson ≥4	746	216	790	228	1.004 (0.834-1.210)	0.96	1.109 (0.822-1.497)	0.50
Frailty score <7	1147	96	1133	74	0.812 (0.599-1.100)	0.18		
Frailty score ≥7	1013	264	1027	290	0.968 (0.819-1.144)	0.70	1.228 (0.868-1.735)	0.25
EuroSCORE II <4	1274	110	1290	174	1.478 (1.164-1.877)	0.001		
EuroSCORE II ≥4	886	250	870	190	0.740 (0.613-0.894)	0.002	0.489 (0.361-0.663)	<0.0001
Primary MR	866	106	878	136	1.260 (0.977-1.624)	0.08		
Secondary MR	1294	254	1282	228	0.852 (0.713-1.019)	0.08	0.681 (0.499-0.929)	0.02

Supplemental Table 8. Interaction between subgroups for cardiovascular death incidence according to isolated mitral valve surgery or mitral transcatheter edge-to-edge repair.

Cardiovascular death	Isolated mitral valve surgery (n=2160)		Mitral transcatheter edge-to-edge repair (n=2160)		Hazard ratio (95% CI)	p value	Hazard ratio for interaction	p value for interaction
	Number of patients	Number of events	Number of patients	Number of events				
Age <75 yrs	744	51	744	53	0.973 (0.662-1.430)	0.89		
Age ≥75 yrs	1416	196	1416	119	0.608 (0.484-0.764)	<0.0001	0.611 (0.391-0.955)	0.03
Sex (Female)	907	110	901	69	0.620 (0.459-0.839)	0.002		
Sex (Male)	1253	137	1259	103	0.739 (0.572-0.954)	0.02	1.224 (0.825-1.817)	0.32
No Hypertension	709	55	678	49	0.893 (0.607-1.314)	0.57		
Hypertension	1451	192	1482	123	0.623 (0.497-0.782)	<0.0001	0.700 (0.448-1.094)	0.12
No Diabetes mellitus	1780	188	1741	133	0.704 (0.563-0.879)	0.002		
Diabetes mellitus	380	59	419	39	0.616 (0.410-0.924)	0.02	0.891 (0.562-1.414)	0.63
No Coronary artery disease	1070	101	1095	80	0.755 (0.563-1.013)	0.06		
Coronary artery disease	1090	146	1065	92	0.637 (0.490-0.827)	0.0007	0.840 (0.567-1.244)	0.38
No Dilated cardiomyopathy	1687	169	1709	127	0.740 (0.587-0.931)	0.01		
Dilated cardiomyopathy	473	78	451	45	0.567 (0.393-0.819)	0.003	0.770 (0.499-1.188)	0.24
No Atrial fibrillation	592	63	594	40	0.603 (0.405-0.897)	0.01		
Atrial fibrillation	1568	184	1566	132	0.719 (0.575-0.899)	0.004	1.231 (0.781-1.941)	0.37
Charlson <4	1414	114	1370	69	0.621 (0.460-0.838)	0.002		
Charlson ≥4	746	133	790	103	0.737 (0.569-0.953)	0.02	1.211 (0.816-1.797)	0.34
Frailty score <7	1147	79	1133	40	0.542 (0.370-0.793)	0.002		
Frailty score ≥7	1013	168	1027	132	0.714 (0.568-0.897)	0.004	1.352 (0.868-2.107)	0.18
EuroSCORE II <4	1274	66	1290	74	1.078 (0.773-1.502)	0.66		
EuroSCORE II ≥4	886	181	870	98	0.539 (0.421-0.689)	<0.0001	0.487 (0.322-0.736)	0.0006
Primary MR	866	72	878	60	0.815 (0.578-1.148)	0.24		
Secondary MR	1294	175	1282	112	0.629 (0.496-0.797)	0.0001	0.768 (0.506-1.165)	0.21

Supplemental Table 9. Baseline characteristics of unmatched and matched patients treated with isolated surgical mitral valve repair (excluding patients with mitral valve replacement) or mitral transcatheter edge-to-edge repair.

	Before PS matching				After PS matching			
	Isolated mitral valve repair	Mitral transcatheter edge-to-edge repair	p	Standardized difference	Isolated mitral valve repair	Mitral transcatheter edge-to-edge repair	p	Standardized difference
	(n=39445)	(n=4724)		(%)	(n=1851)	(n=1851)		(%)
Age (years), mean±SD	65.4±12.4	79.7±9.2	<0.0001	118.4	75.9±8.5	75.9±8.5	1.00	0.0
Sex (male), n (%)	25493 (64.6)	2718 (57.5)	<0.0001	-14.8	1067 (57.6)	1080 (58.4)	0.67	1.4
Hypertension, n (%)	20500 (52.0)	3377 (71.5)	<0.0001	39.5	1251 (67.6)	1255 (67.8)	0.89	0.4
Diabetes mellitus, n (%)	5163 (13.1)	925 (19.6)	<0.0001	18.9	340 (18.4)	336 (18.2)	0.86	-0.6
Heart failure, n (%)	24026 (60.9)	4009 (84.9)	<0.0001	50.3	1485 (80.2)	1462 (79.0)	0.35	-3.1
History of pulmonary edema, n (%)	7025 (17.8)	608 (12.9)	<0.0001	-13.1	298 (16.1)	284 (15.3)	0.53	-2.1
Valve disease, n (%)	39370 (99.8)	4720 (99.9)	0.11	2.6	1850 (100.0)	1849 (99.9)	0.56	-2.1
Aortic stenosis, n (%)	6260 (15.9)	740 (15.7)	0.72	-0.6	315 (17.0)	292 (15.8)	0.31	-3.3
Aortic regurgitation, n (%)	5566 (14.1)	620 (13.1)	0.06	-2.9	299 (16.2)	285 (15.4)	0.53	-2.1
Mitral regurgitation, n (%)	38743 (98.2)	4675 (99.0)	0.0002	5.7	1830 (98.9)	1825 (98.6)	0.46	-2.4
Dilated cardiomyopathy, n (%)	5179 (13.1)	1189 (25.2)	<0.0001	34.5	382 (20.6)	362 (19.6)	0.41	-2.7
Coronary artery disease, n (%)	14050 (35.6)	2576 (54.5)	<0.0001	39.3	882 (47.7)	874 (47.2)	0.79	-0.9
Previous MI, n (%)	2343 (5.9)	592 (12.5)	<0.0001	26.6	185 (10.0)	186 (10.1)	0.96	0.2
Previous PCI, n (%)	2264 (5.7)	1117 (23.7)	<0.0001	68.9	262 (14.2)	294 (15.9)	0.14	4.8
Previous CABG, n (%)	5424 (13.8)	150 (3.2)	<0.0001	-32.0	96 (5.2)	111 (6.0)	0.28	3.5
Vascular disease, n (%)	7147 (18.1)	1610 (34.1)	<0.0001	40.3	555 (30.0)	542 (29.3)	0.64	-1.5
Atrial fibrillation, n (%)	24693 (62.6)	3316 (70.2)	<0.0001	15.8	1346 (72.7)	1333 (72.0)	0.63	-1.6
Previous pacemaker or ICD, n (%)	3065 (7.8)	1065 (22.5)	<0.0001	51.4	301 (16.3)	290 (15.7)	0.62	-1.6
Ischemic stroke, n (%)	1732 (4.4)	207 (4.4)	0.99	0.0	95 (5.1)	98 (5.3)	0.82	0.7
Intracranial bleeding, n (%)	533 (1.4)	91 (1.9)	0.001	4.9	35 (1.9)	43 (2.3)	0.36	3.0
Smoker, n (%)	5747 (14.6)	751 (15.9)	0.02	3.8	276 (14.9)	275 (14.9)	0.96	-0.1
Dyslipidaemia, n (%)	10749 (27.3)	1773 (37.5)	<0.0001	22.9	641 (34.6)	647 (35.0)	0.84	0.7
Obesity, n (%)	6477 (16.4)	960 (20.3)	<0.0001	10.4	374 (20.2)	379 (20.5)	0.84	0.7

Alcohol related diagnoses, n (%)	2012 (5.1)	265 (5.6)	0.14	2.3	117 (6.3)	114 (6.2)	0.84	-0.7
Chronic kidney disease, n (%)	3002 (7.6)	1082 (22.9)	<0.0001	53.5	290 (15.7)	306 (16.5)	0.47	2.3
Lung disease, n (%)	5550 (14.1)	1080 (22.9)	<0.0001	24.7	371 (20.0)	400 (21.6)	0.24	3.9
Sleep apnoea syndrome, n (%)	2816 (7.1)	575 (12.2)	<0.0001	18.9	202 (10.9)	237 (12.8)	0.08	5.8
COPD, n (%)	3179 (8.1)	707 (15.0)	<0.0001	24.5	227 (12.3)	250 (13.5)	0.26	3.7
Liver disease, n (%)	2189 (5.6)	382 (8.1)	<0.0001	10.9	137 (7.4)	150 (8.1)	0.42	2.6
Thyroid diseases, n (%)	3593 (9.1)	795 (16.8)	<0.0001	25.9	268 (14.5)	271 (14.6)	0.89	0.5
Inflammatory disease, n (%)	2390 (6.1)	612 (13.0)	<0.0001	27.5	185 (10.0)	206 (11.1)	0.26	3.7
Anaemia, n (%)	9455 (24.0)	1535 (32.5)	<0.0001	19.7	568 (30.7)	575 (31.1)	0.80	0.8
Previous cancer, n (%)	3077 (7.8)	856 (18.1)	<0.0001	36.5	294 (15.9)	295 (15.9)	0.96	0.2
Poor nutrition, n (%)	4225 (10.7)	1290 (27.3)	<0.0001	50.8	417 (22.5)	439 (23.7)	0.39	2.8
Cognitive impairment, n (%)	358 (0.9)	162 (3.4)	<0.0001	23.4	40 (2.2)	51 (2.8)	0.24	3.9
Cardiorenal syndrome, n (%)	2.8±2.7	4.2±2.7	<0.0001	48.3	3.8±2.7	3.8±2.6	0.94	-0.3
Frailty index, mean±SD	6.4±7.3	9.3±8.6	<0.0001	38.8	8.7±8.1	8.7±8.2	0.84	-0.7
EuroSCORE II, mean±SD	3.2±1.3	4.0±1.2	<0.0001	64.6	3.8±1.2	3.9±1.2	0.65	1.5
Year of inclusion, median (IQR)	2017 (2014-2019)	2020 (2019-2021)	<0.0001	105.3	2020 (2018-2021)	2020 (2018-2021)	1.00	0.0

Supplemental Table 10. Clinical outcomes during follow-up in the matched population of patients treated with isolated surgical mitral valve repair (excluding patients with mitral valve replacement) or mitral transcatheter edge-to-edge repair.

	Isolated mitral valve repair (n=1851)			Mitral transcatheter edge-to-edge repair (n=1851)			Hazard ratio (95% CI)	p value	p (corrected by Bonferroni)
	Person-time (patient.year)	Number of events	Incidence, %/year (95% CI)	Person-time (patient.year)	Number of events	Incidence, %/year (95% CI)			
All-cause death	1872	289	15.44 (13.66-17.22)	1983	301	15.18 (13.46-16.89)	1.020 (0.868-1.199)	0.81	1
Cardiovascular death	1872	188	10.04 (8.61-11.48)	1983	139	7.01 (5.84-8.18)	0.738 (0.593-0.919)	0.007	0.03
Non-cardiovascular death	1872	101	5.40 (4.34-6.45)	1983	162	8.17 (6.91-9.43)	1.534 (1.196-1.967)	0.0008	0.003
Pulmonary edema during FU	1851	29	1.57 (1.00-2.14)	1968	47	2.39 (1.71-3.07)	1.566 (0.985-2.489)	0.06	0.23
Incident AF	1806	83	4.60 (3.61-5.58)	1919	74	3.86 (2.98-4.74)	0.861 (0.629-1.178)	0.35	1
VF / sustained VT / cardiac arrest	1856	25	1.35 (0.82-1.88)	1961	51	2.60 (1.89-3.32)	1.989 (1.232-3.212)	0.005	0.02
Pacemaker or ICD	1707	178	10.43 (8.90-11.96)	1859	140	7.53 (6.28-8.78)	0.773 (0.619-0.965)	0.02	0.09
Ischemic stroke	1842	50	2.71 (1.96-3.47)	1968	30	1.52 (0.98-2.07)	0.571 (0.363-0.898)	0.02	0.06
Incident MI	1857	14	0.75 (0.36-1.15)	1971	15	0.76 (0.38-1.15)	1.030 (0.497-2.135)	0.94	1
Endocarditis	1846	44	2.38 (1.68-3.09)	1962	29	1.48 (0.94-2.02)	0.624 (0.390-0.997)	0.05	0.19
Major bleeding during FU	1780	87	4.89 (3.86-5.92)	1919	82	4.27 (3.35-5.20)	0.894 (0.661-1.209)	0.47	1
Cardiovascular death / Pulmonary edema during FU	1849	210	11.36 (9.82-12.89)	1966	169	8.60 (7.30-9.89)	0.800 (0.653-0.980)	0.03	0.12
All-cause death / hospitalisation for HF / AF or ischemic stroke during FU	1753	406	23.16 (20.91-25.42)	1890	380	20.10 (18.08-22.12)	0.904 (0.785-1.040)	0.16	0.62