Study or Subgroup	TTE Mean	SD	Total	TEE Mean	SD	Total	Weight	MD [95% CI]	ICU time (h)
Observational adjusted									
Hosoba 2018	24.00	0.0000	118	24.00	18.0127	118	0.0%	0.00	
Condado 2017	17.13	22.6520	46	34.70	20.0340	42	11.0%	−17.57 [−26.49; −8.65]	
Oguri 2014	79.92	53.5440	403	55.99	53.5673	403	11.5%	23.93 [16.53; 31.32]	
Sengupta 2015	64.51	29.8100	47	65.30	31.3700	64	10.1%	−0.79 [−12.27; 10.69]	
Sherifi 2018	88.90	104.6000	96	67.20	30.0000	48	6.4%	21.70 [−0.88; 44.28]	
Total (95% CI)			**710**			**675**	**38.9%**	**6.22 [−16.34; 28.78]**	

Heterogeneity: Tau^2 = 483.3906; Chi^2 = 52.59, df = 3 (P < 0.01); I^2 = 94%
Test for overall effect: Z = 0.54 (P = 0.59)

Study or Subgroup	TTE Mean	SD	Total	TEE Mean	SD	Total	Weight	MD [95% CI]	ICU time (h)
Observational unadjusted									
Gurevich 2018	23.33	3.0570	49	24.67	4.5290	81	12.7%	−1.33 [−2.64; −0.03]	
Palermo 2016	108.00	100.8000	44	91.20	69.6000	21	2.8%	16.80 [−25.31; 58.91]	
Kiramijyan 2016	57.60	62.4000	467	67.20	86.4000	66	6.6%	−9.60 [−31.20; 12.00]	
Dehedin 2011	72.00	37.1490	34	80.00	54.2370	91	8.2%	−8.00 [−24.74; 8.74]	
Covello 2010	15.30	2.8000	42	31.60	2.7000	27	12.7%	−16.30 [−17.62; −14.98]	
Abud 2018	48.00	36.3790	66	72.00	36.5410	55	9.5%	−24.00 [−37.05; −10.95]	
Hayek 2017	23.00	42.0000	234	51.00	113.0000	220	8.5%	−28.00 [−43.87; −12.13]	
Gauthier 2015	24.00	0.0000	66	24.00	0.0000	51	0.0%	0.00	
Total (95% CI)			**1002**			**612**	**61.1%**	**−12.68 [−22.28; −3.09]**	

Heterogeneity: Tau^2 = 110.2458; Chi^2 = 260.99, df = 6 (P < 0.01); I^2 = 98%
Test for overall effect: Z = −2.59 (P < 0.01)

Total (95% CI)			**1712**			**1287**	**100.0%**	**−5.60 [−13.66; 2.45]**	

Heterogeneity: Tau^2 = 133.0382; Chi^2 = 347.84, df = 10 (P < 0.01); I^2 = 97%
Test for overall effect: Z = −1.36 (P = 0.17)
Test for subgroup differences: Chi^2 = 2.28, df = 1 (P = 0.13)
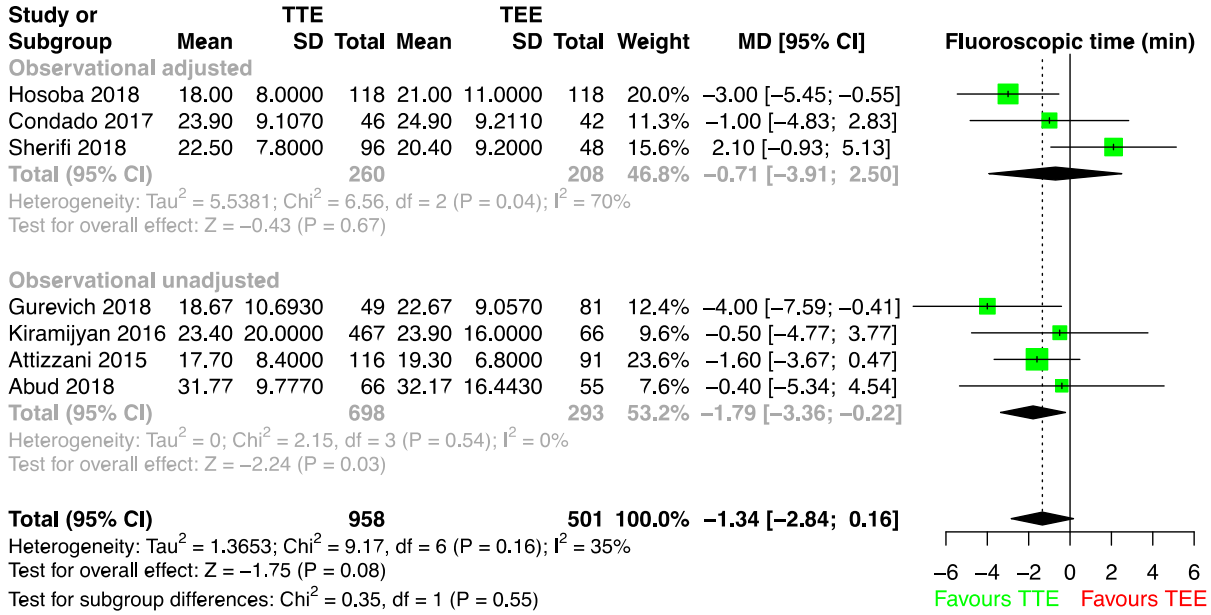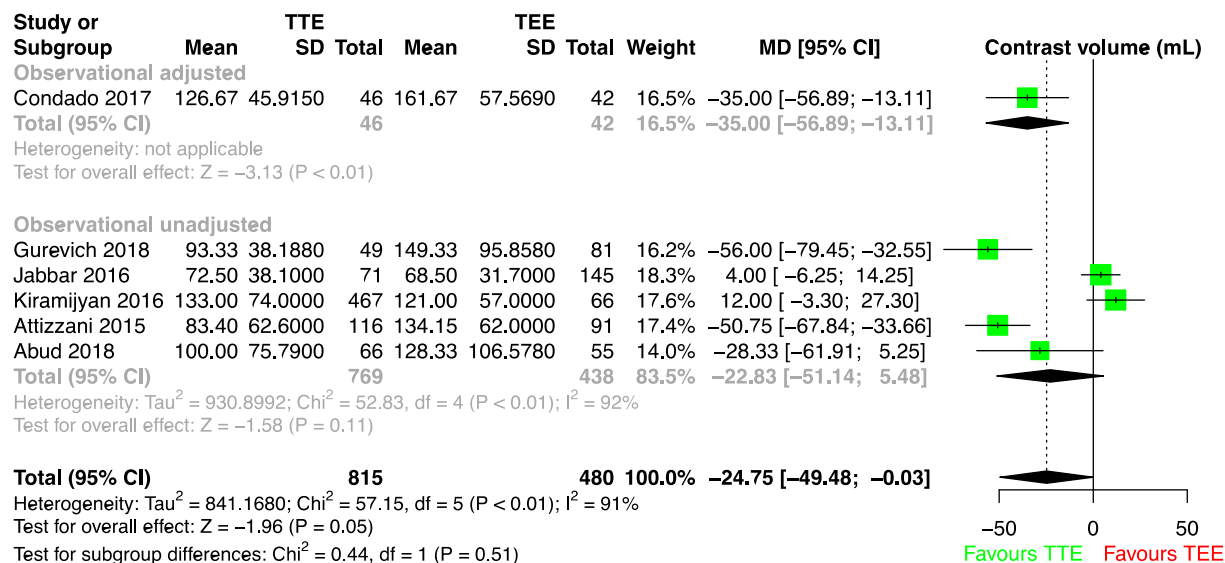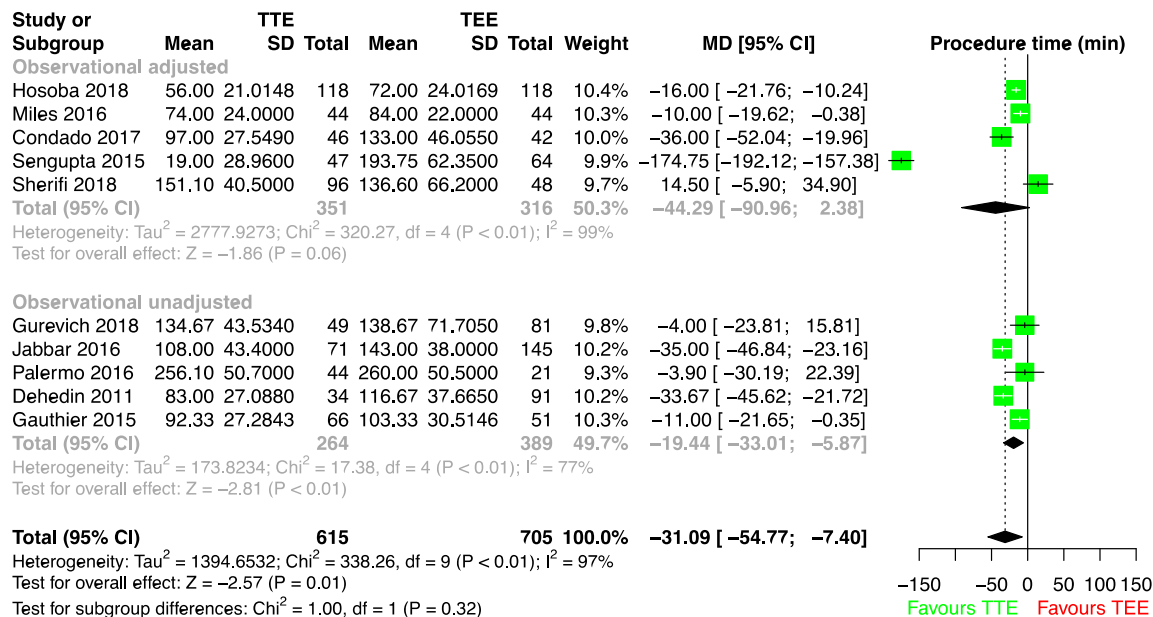
−40 −20 0 20 40
Favours TTE   Favours TEE

Supplementary Figure 9. Forest plot for weighted mean differences (h) of ICU time for TTE-TAVI in comparison to TEE-TAVI with subgroups based on study type. TTE: transthoracic echocardiography; TEE: transesophageal echocardiography; MD: mean difference; CI: confidence interval; TAVI: transcatheter aortic valve replacement

Study or Subgroup	TTE Mean	SD	Total	TEE Mean	SD	Total	Weight	MD [95% CI]	Fluoroscopic time (min)
Observational adjusted									
Hosoba 2018	18.00	8.0000	118	21.00	11.0000	118	20.0%	−3.00 [−5.45; −0.55]	
Condado 2017	23.90	9.1070	46	24.90	9.2110	42	11.3%	−1.00 [−4.83; 2.83]	
Sherifi 2018	22.50	7.8000	96	20.40	9.2000	48	15.6%	2.10 [−0.93; 5.13]	
Total (95% CI)			260			208	46.8%	−0.71 [−3.91; 2.50]	

Heterogeneity: Tau^2 = 5.5381; Chi^2 = 6.56, df = 2 (P = 0.04); I^2 = 70%
Test for overall effect: Z = −0.43 (P = 0.67)

Observational unadjusted									
Gurevich 2018	18.67	10.6930	49	22.67	9.0570	81	12.4%	−4.00 [−7.59; −0.41]	
Kiramijyan 2016	23.40	20.0000	467	23.90	16.0000	66	9.6%	−0.50 [−4.77; 3.77]	
Attizzani 2015	17.70	8.4000	116	19.30	6.8000	91	23.6%	−1.60 [−3.67; 0.47]	
Abud 2018	31.77	9.7770	66	32.17	16.4430	55	7.6%	−0.40 [−5.34; 4.54]	
Total (95% CI)			698			293	53.2%	−1.79 [−3.36; −0.22]	

Heterogeneity: Tau^2 = 0; Chi^2 = 2.15, df = 3 (P = 0.54); I^2 = 0%
Test for overall effect: Z = −2.24 (P = 0.03)

Total (95% CI)			958			501	100.0%	−1.34 [−2.84; 0.16]	

Heterogeneity: Tau^2 = 1.3653; Chi^2 = 9.17, df = 6 (P = 0.16); I^2 = 35%
Test for overall effect: Z = −1.75 (P = 0.08)
Test for subgroup differences: Chi^2 = 0.35, df = 1 (P = 0.55)

−6 −4 −2 0 2 4 6
Favours TTE   Favours TEE

Supplementary Figure 10. Forest plot for weighted mean differences (min) of fluoroscopic time for TTE-TAVI in comparison to TEE-TAVI with subgroups based on study type. TTE: transthoracic echocardiography; TEE: transesophageal echocardiography; MD: mean difference; CI: confidence interval; TAVI: transcatheter aortic valve replacement

Study or Subgroup	Mean	TTE SD	Total	Mean	TEE SD	Total	Weight	MD [95% CI]	Contrast volume (mL)
Observational adjusted									
Condado 2017	126.67	45.9150	46	161.67	57.5690	42	16.5%	−35.00 [−56.89; −13.11]	
Total (95% CI)			46			42	16.5%	−35.00 [−56.89; −13.11]	
Heterogeneity: not applicable									
Test for overall effect: Z = −3.13 (P < 0.01)									
Observational unadjusted									
Gurevich 2018	93.33	38.1880	49	149.33	95.8580	81	16.2%	−56.00 [−79.45; −32.55]	
Jabbar 2016	72.50	38.1000	71	68.50	31.7000	145	18.3%	4.00 [−6.25; 14.25]	
Kiramijyan 2016	133.00	74.0000	467	121.00	57.0000	66	17.6%	12.00 [−3.30; 27.30]	
Attizzani 2015	83.40	62.6000	116	134.15	62.0000	91	17.4%	−50.75 [−67.84; −33.66]	
Abud 2018	100.00	75.7900	66	128.33	106.5780	55	14.0%	−28.33 [−61.91; 5.25]	
Total (95% CI)			769			438	83.5%	−22.83 [−51.14; 5.48]	
Heterogeneity: Tau^2 = 930.8992; Chi^2 = 52.83, df = 4 (P < 0.01); I^2 = 92%									
Test for overall effect: Z = −1.58 (P = 0.11)									
Total (95% CI)			815			480	100.0%	−24.75 [−49.48; −0.03]	
Heterogeneity: Tau^2 = 841.1680; Chi^2 = 57.15, df = 5 (P < 0.01); I^2 = 91%									
Test for overall effect: Z = −1.96 (P = 0.05)									
Test for subgroup differences: Chi^2 = 0.44, df = 1 (P = 0.51)									

−50   0   50
Favours TTE   Favours TEE

Supplementary Figure 11. Forest plot for weighted mean differences (mL) of contrast volume for TTE-TAVI in comparison to TEE-TAVI with subgroups based on study type. TTE: transthoracic echocardiography; TEE: transesophageal echocardiography; MD: mean difference; CI: confidence interval; TAVI: transcatheter aortic valve replacement

Supplementary Figure 12. Forest plot for weighted mean differences (min) of procedure for TTE-TAVI in comparison to TEE-TAVI with subgroups based on study type. TTE: transthoracic echocardiography; TEE: transesophageal echocardiography; MD: mean difference; CI: confidence interval; TAVI: transcatheter aortic valve replacement