Supplementary Figures

Figures S1-S6: Forest plots for recipient baseline characteristics in meta-analysis

Figure S1: Age

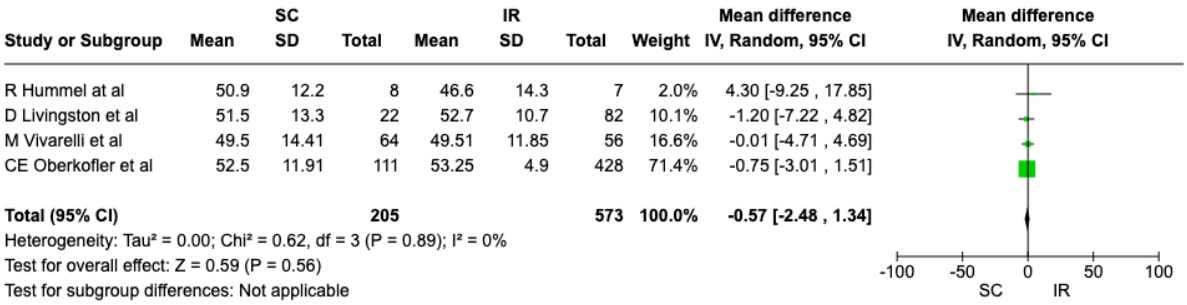


Figure S2: Gender

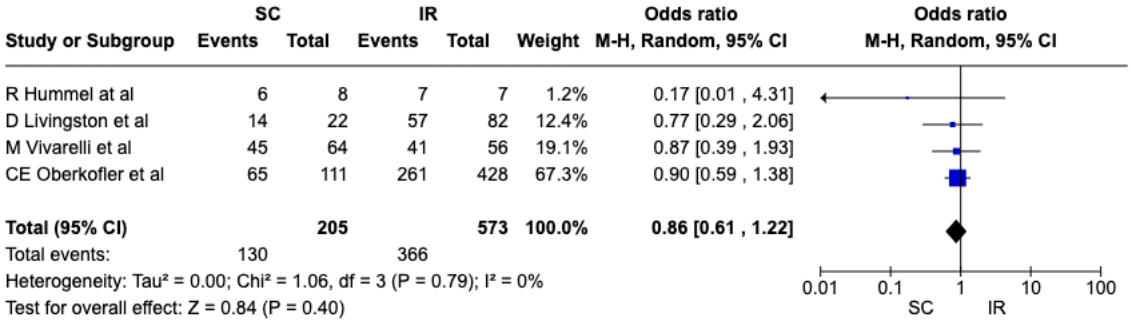


Figure S3: BMI

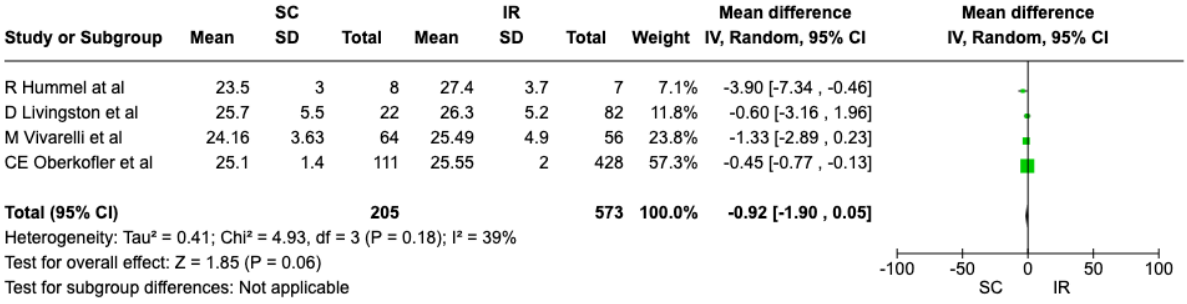


Figure S4: MELD

Study or Subgroup	SC Mean	SC SD	SC Total	IR Mean	IR SD	IR Total	Weight	Mean difference IV, Fixed, 95% CI
R Hummel at al	22.7	11.7	8	16.5	9.5	7	0.9%	6.20 [-4.54 , 16.94]
D Livingston et al	19.6	9.7	22	19.6	9.7	82	5.2%	0.00 [-4.56 , 4.56]
M Vivarelli et al	22.75	10.68	64	18.75	7.8	56	9.8%	4.00 [0.68 , 7.32]
CE Oberkofler et al	25	5.2	111	22.75	6.3	428	84.0%	2.25 [1.11 , 3.39]
Total (95% CI)			**205**			**573**	**100.0%**	**2.34 [1.30 , 3.38]**

Heterogeneity: Chi² = 2.49, df = 3 (P = 0.48); I² = 0%
Test for overall effect: Z = 4.41 (P < 0.0001)
Test for subgroup differences: Not applicable

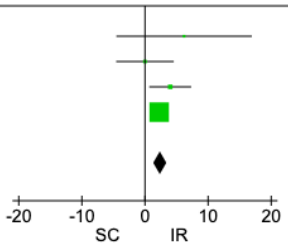


Figure S5: Re-transplantations

Study or Subgroup	SC Events	SC Total	IR Events	IR Total	Weight	Odds ratio IV, Fixed, 95% CI
R Hummel at al	3	8	3	7	2.8%	0.80 [0.10 , 6.35]
D Livingston et al	10	22	45	82	13.3%	0.69 [0.27 , 1.76]
M Vivarelli et al	16	64	14	56	17.3%	1.00 [0.44 , 2.29]
CE Oberkofler et al	54	111	147	428	66.6%	1.81 [1.19 , 2.76]
Total (95% CI)		**205**		**573**	**100.0%**	**1.40 [0.99 , 1.98]**
Total events:	83		209			

Heterogeneity: Chi² = 4.54, df = 3 (P = 0.21); I² = 34%
Test for overall effect: Z = 1.93 (P = 0.05)
Test for subgroup differences: Not applicable

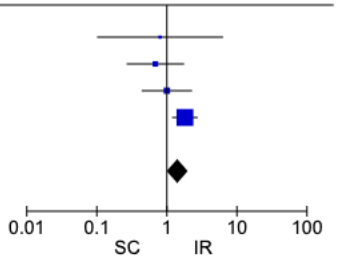
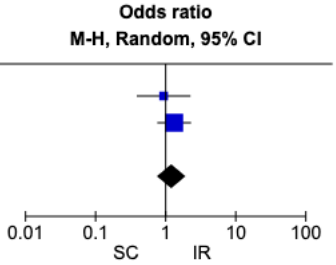


Figure S6: TACE

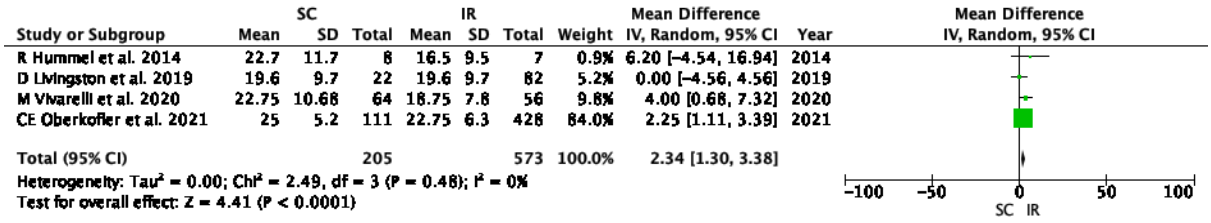
Study or Subgroup	SC Events	SC Total	IR Events	IR Total	Weight	Odds ratio M-H, Random, 95% CI
M Vivarelli et al	13	64	12	56	28.3%	0.93 [0.39 , 2.26]
CE Oberkofler et al	20	111	61	428	71.7%	1.32 [0.76 , 2.30]
Total (95% CI)		**175**		**484**	**100.0%**	**1.20 [0.75 , 1.92]**
Total events:	33		73			

Heterogeneity: Tau² = 0.00; Chi² = 0.43, df = 1 (P = 0.51); I² = 0%
Test for overall effect: Z = 0.76 (P = 0.45)
Test for subgroup differences: Not applicable



Figures S7-S12: Sensitivity Analysis

S7: Recipient MELD

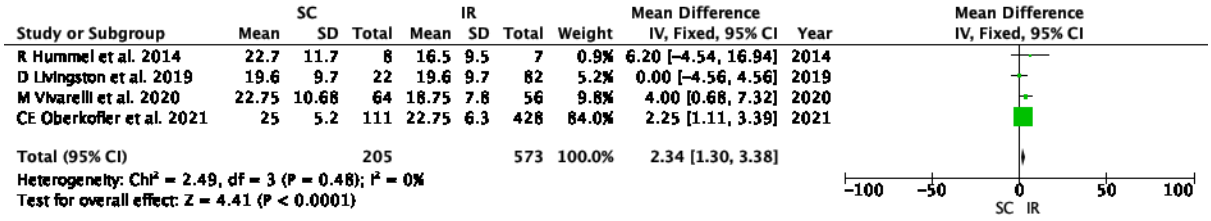


Study or Subgroup	SC Mean	SC SD	SC Total	IR Mean	IR SD	IR Total	Weight	Mean Difference IV, Random, 95% CI	Year
R Hummel et al. 2014	22.7	11.7	8	16.5	9.5	7	0.9%	6.20 [−4.54, 16.94]	2014
D Livingston et al. 2019	19.6	9.7	22	19.6	9.7	82	5.2%	0.00 [−4.56, 4.56]	2019
M Vivarelli et al. 2020	22.75	10.68	64	18.75	7.8	56	9.8%	4.00 [0.68, 7.32]	2020
CE Oberkofler et al. 2021	25	5.2	111	22.75	6.3	428	84.0%	2.25 [1.11, 3.39]	2021
Total (95% CI)			205			573	100.0%	2.34 [1.30, 3.38]	

Heterogeneity: Tau² = 0.00; Chi² = 2.49, df = 3 (P = 0.48); I² = 0%
Test for overall effect: Z = 4.41 (P < 0.0001)

Mean Difference IV, Random, 95% CI

−100 −50 0 50 100
SC IR

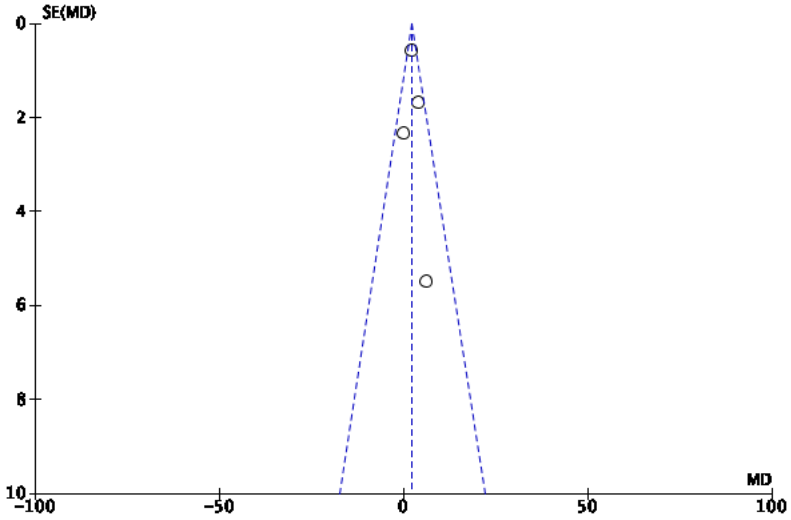


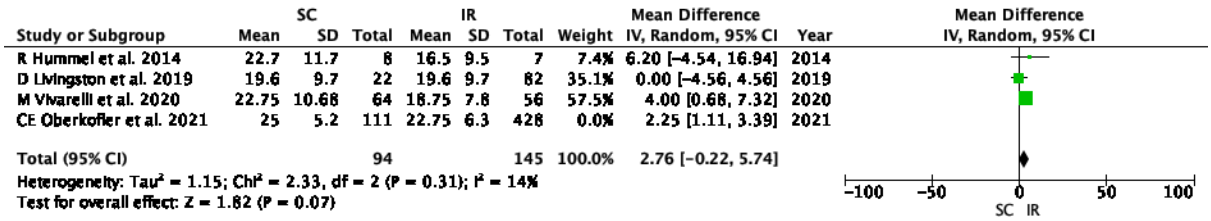
Study or Subgroup	SC Mean	SC SD	SC Total	IR Mean	IR SD	IR Total	Weight	Mean Difference IV, Fixed, 95% CI	Year
R Hummel et al. 2014	22.7	11.7	8	16.5	9.5	7	0.9%	6.20 [−4.54, 16.94]	2014
D Livingston et al. 2019	19.6	9.7	22	19.6	9.7	82	5.2%	0.00 [−4.56, 4.56]	2019
M Vivarelli et al. 2020	22.75	10.68	64	18.75	7.8	56	9.8%	4.00 [0.68, 7.32]	2020
CE Oberkofler et al. 2021	25	5.2	111	22.75	6.3	428	84.0%	2.25 [1.11, 3.39]	2021
Total (95% CI)			205			573	100.0%	2.34 [1.30, 3.38]	

Heterogeneity: Chi² = 2.49, df = 3 (P = 0.48); I² = 0%
Test for overall effect: Z = 4.41 (P < 0.0001)

Mean Difference IV, Fixed, 95% CI

−100 −50 0 50 100
SC IR





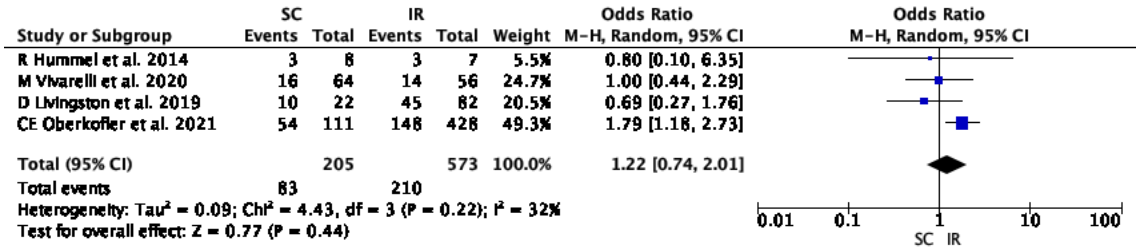
Study or Subgroup	SC Mean	SC SD	SC Total	IR Mean	IR SD	IR Total	Weight	Mean Difference IV, Random, 95% CI	Year
R Hummel et al. 2014	22.7	11.7	8	16.5	9.5	7	7.4%	6.20 [−4.54, 16.94]	2014
D Livingston et al. 2019	19.6	9.7	22	19.6	9.7	82	35.1%	0.00 [−4.56, 4.56]	2019
M Vivarelli et al. 2020	22.75	10.68	64	18.75	7.8	56	57.5%	4.00 [0.68, 7.32]	2020
CE Oberkofler et al. 2021	25	5.2	111	22.75	6.3	428	0.0%	2.25 [1.11, 3.39]	2021
Total (95% CI)			94			145	100.0%	2.76 [−0.22, 5.74]	

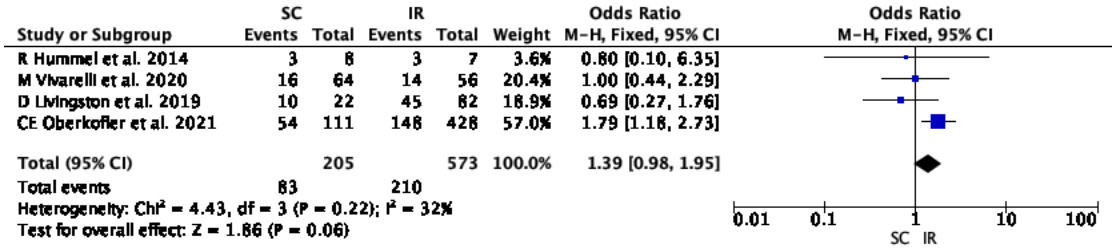
Heterogeneity: Tau² = 1.15; Chi² = 2.33, df = 2 (P = 0.31); I² = 14%
Test for overall effect: Z = 1.82 (P = 0.07)

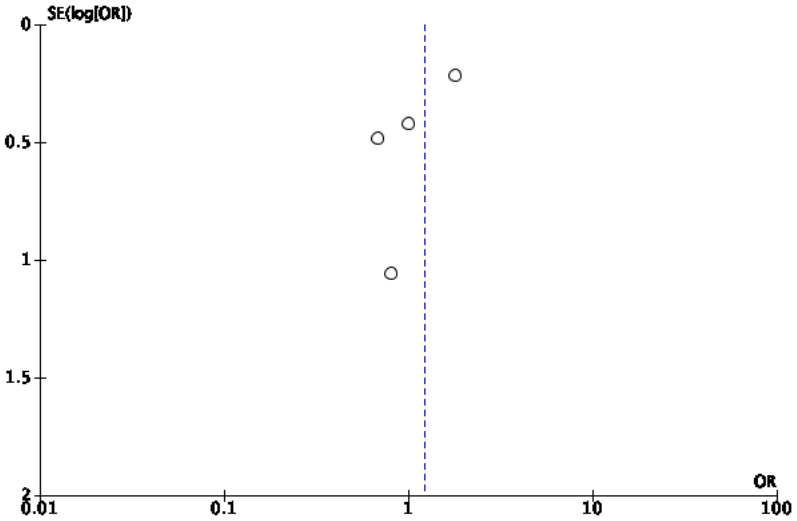
Mean Difference IV, Random, 95% CI

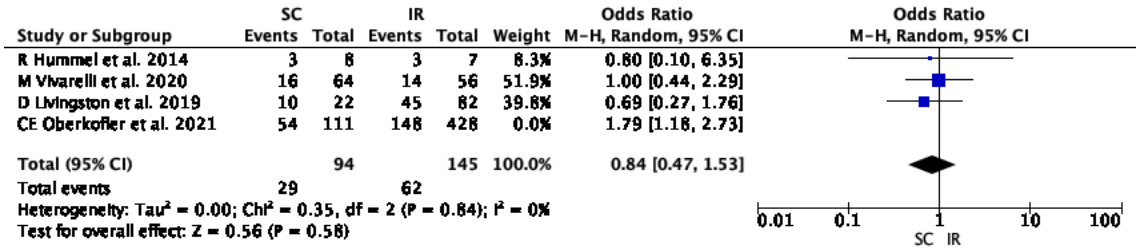
−100 −50 0 50 100
SC IR

S8: Retransplantation

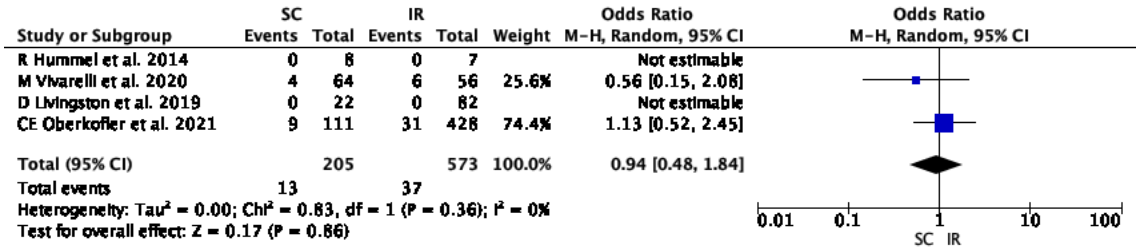


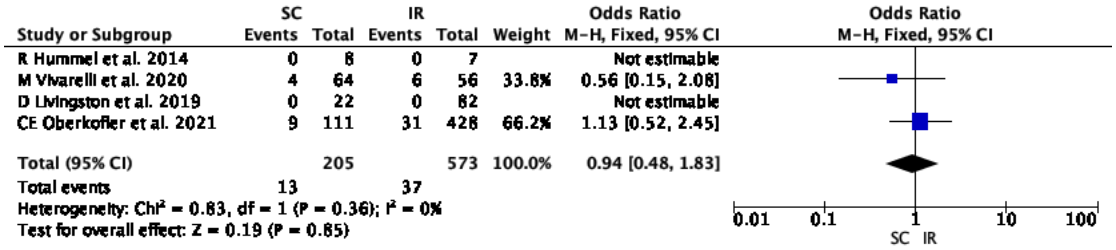


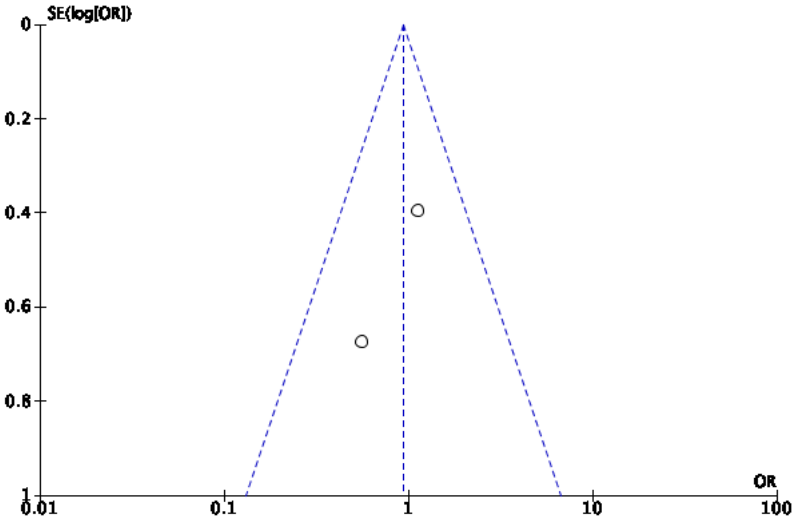




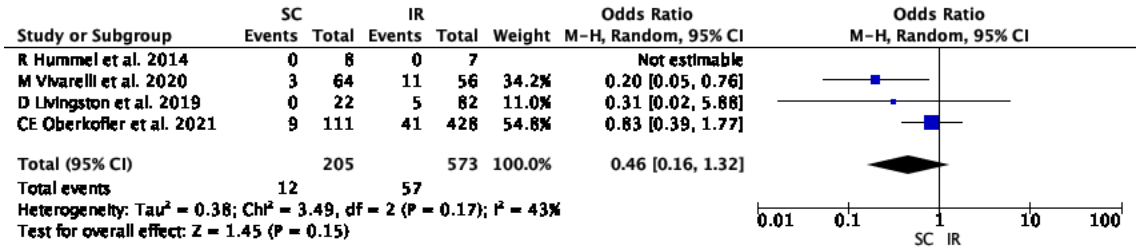
S9: Early occlusions

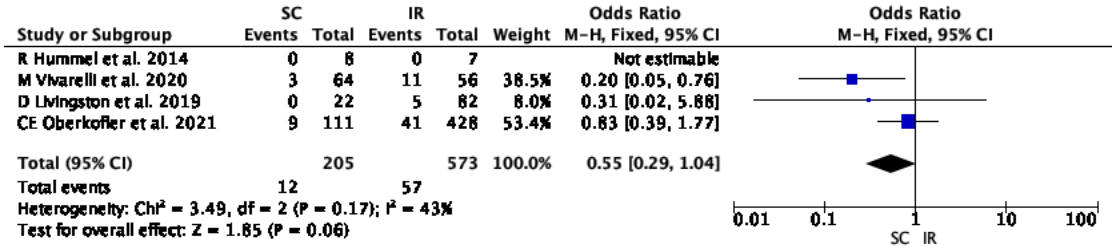


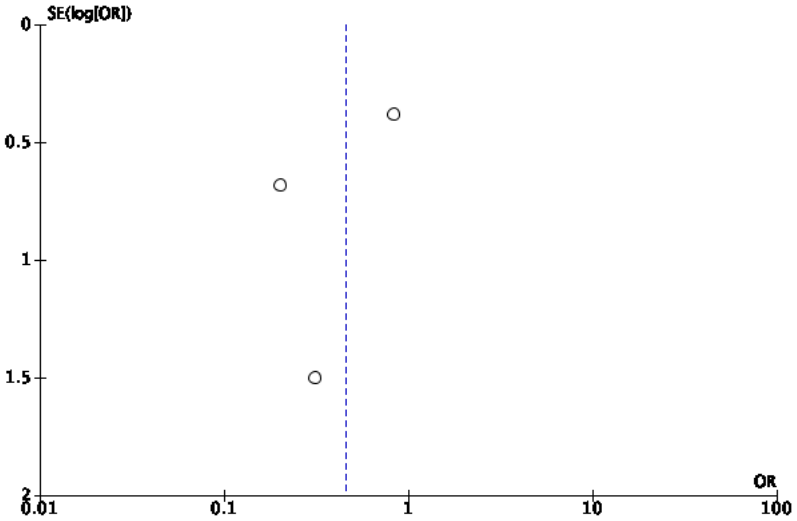


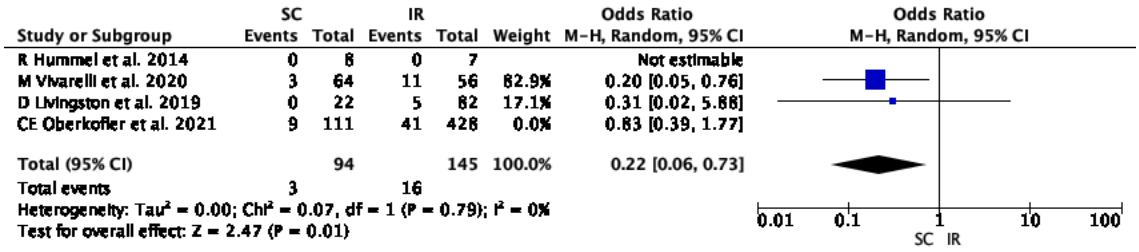


S10: Late occlusions

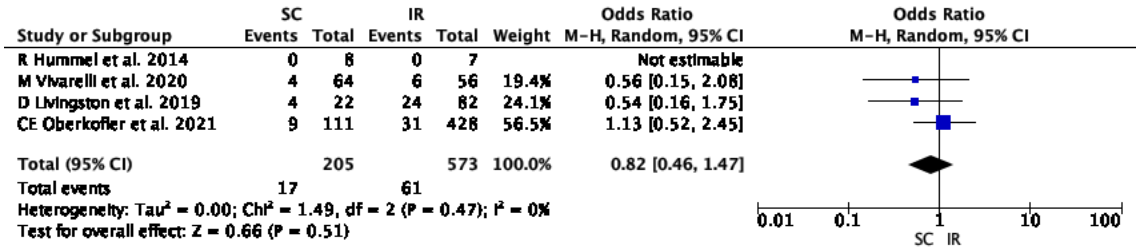


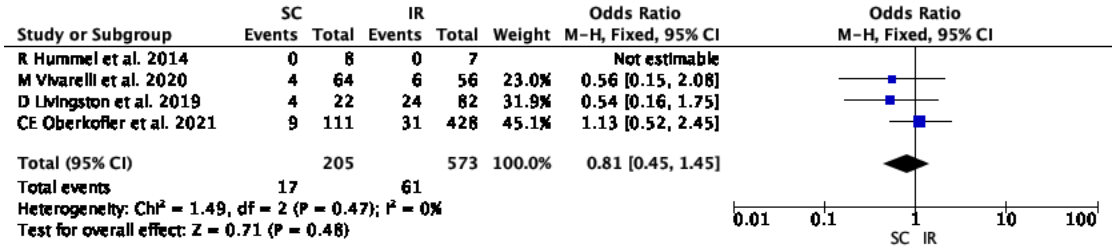


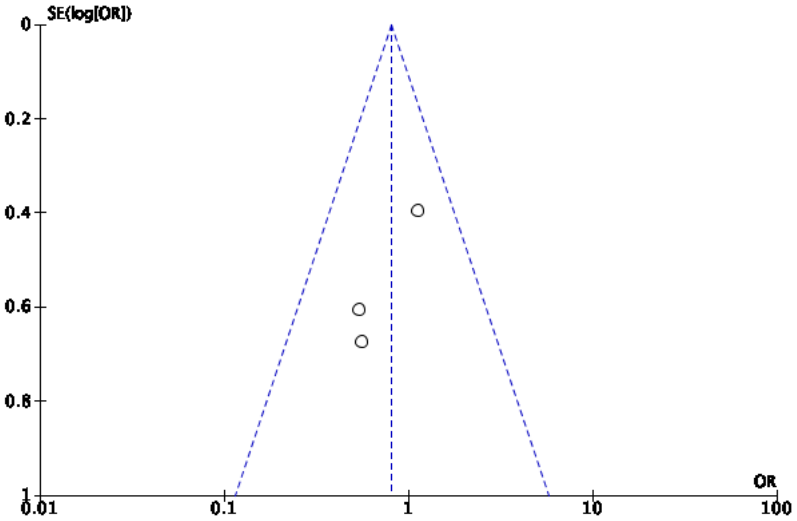


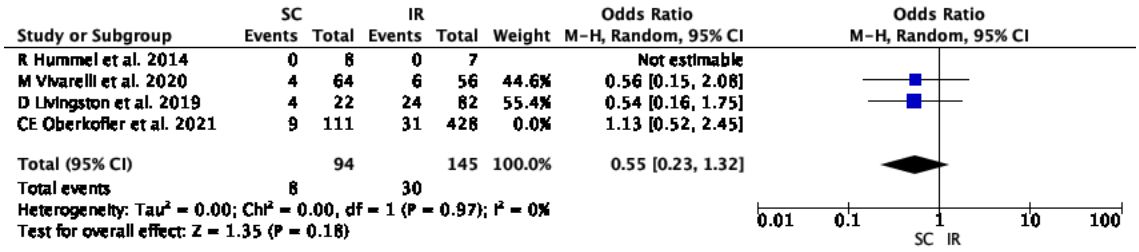


S11: Early Allograft Dysfunction (EAD)









S12: Biliary complications