

Table 1: Newcastle-Ottawa Quality Assessment Scale for the included studies

Authors	Selection				Comparability		Exposure			Total
	Is the Case Definition Adequate?	Representativeness of the Cases	Selection of Controls	Definition of Controls	Age	Other	Ascertainment of Exposure	Same method for ascertainment for cases and control	Non-Response Rate	
Ayuso et al.[5]	*	*					*			3
Soy et al.[6]	*	*	*	*	*	*	*	*		8
Ealing et al. [7]	*	*	*	*	*	*	*	*		8
Kim et al.[8]	*	*	*	*	*	*	*	*		8
Cos et al.[9]	*	*	*	*	*	*	*	*		8
Yassein et al.[10]	*	*	*	*	*	*	*	*		8
Justo et al.[14]	*	*	*	*	*	*	*	*		8
Vennarecci et al. [15]	*	*	*	*	*		*	*		7
Han et al.[16]	*	*	*	*	*	*	*	*		8
Kuo et al.[17]	*	*	*	*	*	*	*	*		8
Kurmann et al.[18]	*	*	*	*	*	*	*	*		8
Bastante et al.[34]	*		*	*			*	*		5
Fikatas et al.[35]	*	*					*			3
Ferri et al.[43]	*	*	*	*	*		*	*		7
Lam et al.[36]	*	*	*	*	*	*	*	*		8
Vardanian et al.[37]	*	*	*	*	*	*	*	*		8
Mekeel et al.[38]	*	*	*	*	*	*	*	*		8
Heise et al.[39]	*	*	*	*			*	*		6
Werkgartner et al.[42]	*	*	*	*	*	*	*	*		8
de Goede et al.[44]	*	*	*	*	*		*	*		7
Adani et al.[54]	*	*	*	*			*	*		5
Donataccio et al.[55]	*	*	*	*	*	*	*	*		8
Gastacta et al.[56]	*	*					*			3
Gianchandani et al.[59]	*	*	*	*			*	*		6
Gomez et al.[45]	*	*					*			3

Hegab et al.[60]	*	*	*	*	*	*	*	*		8
Heisterkamp et al.[57]	*	*	*	*	*	*	*	*		8
Janssen et al.[46]	*	*	*		*	*	*			6
Kahn et al.[47]	*	*	*	*	*	*	*	*		8
Lee et al.[48]	*	*	*	*	*	*	*	*		8
Montalti et al.[49]	*	*	*	*	*	*	*	*		8
Nielsen et al.[62]	*	*	*	*	*		*	*		7
Ozgor et al.[50]	*	*					*			3
Perrakis et al.[63]	*	*					*			3
Piardi et al.[51]	*	*					*			3
Piazzese et al.[52]	*	*	*	*	*	*	*	*		8
Shi et al.[53]	*	*	*	*	*	*	*	*		8
Weiss et al.[61]	*	*	*	*	*	*	*	*		8
Zarbaliyev et al.[58]	*	*	*	*	*		*	*		7

Table 2: JBI Critical Appraisal Tool

[illegible]

Table 3: ROBINS-E (Risk Of Bias In Non-randomized Studies - of Exposures)

Authors	D1	D1	D1	D2	D3	D4	D5	D6	D7	Overall
Ealing et al.[7]	Y	MVA	LR	LR	LR	LR	LR	LR	LR	LR
Kuo et al.[17]	Y	MVA	LR	LR	LR	LR	LR	LR	LR	LR
Kurmann et al.[18]	Y	MVA	LR	LR	LR	LR	LR	LR	LR	LR
Mekeel et al.[38]	Y	MVA	LR	LR	LR	LR	LR	LR	LR	LR

MVA: Multi-Variate Analysis

LR: Low risk

Table 4: ROBINS-I (Risk Of Bias In Non-randomized Studies - of Interventions)

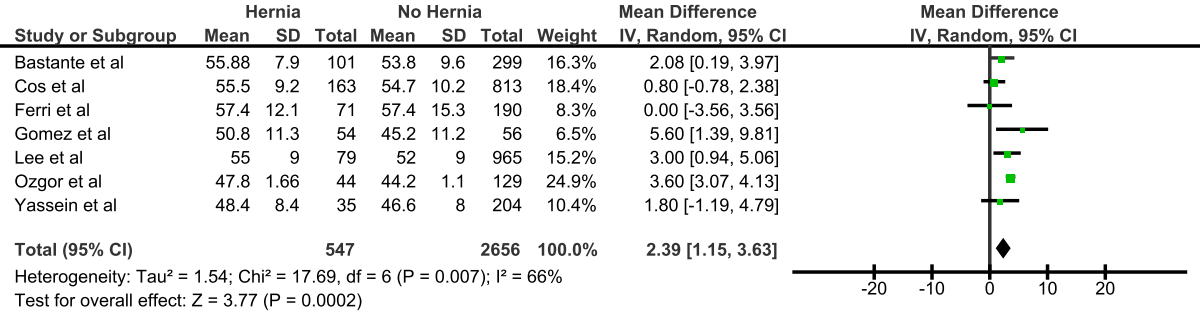
Authors	D1	D1	D1	D2	D3	D4	D5	D6	D7	Overall
Kim et al.[8]	Y	MVA	LR	LR	LR	LR	LR	LR	LR	LR
Cos et al.[9]	Y	MVA	LR	LR	LR	LR	LR	LR	LR	LR
Yassein et al.[10]	Y	MVA	LR	LR	LR	LR	LR	LR	LR	LR
Bastante et al.[34]	Y	MVA	LR	LR	LR	LR	LR	LR	LR	LR
Fikatas et al.[35]	Y	MVA	LR	LR	LR	LR	LR	LR	LR	LR
Ferri et al.[43]	Y	MVA	LR	LR	LR	LR	LR	LR	LR	LR
de Goede et al.[44]	Y	MVA	LR	LR	LR	LR	LR	LR	LR	LR
Gomez et al.[45]	Y	Matching	LR	LR	LR	LR	LR	LR	LR	LR
Kahn et al.[47]	Y	MVA	LR	LR	LR	LR	LR	LR	LR	LR
Lee et al.[48]	Y	MVA	LR	LR	LR	LR	LR	LR	LR	LR
Montalti et al.[49]	Y	MVA	LR	LR	LR	LR	LR	LR	LR	LR
Ozgor et al.[50]	Y	MVA	LR	LR	LR	LR	LR	LR	LR	LR
Piardi et al.[51]	Y	MVA	LR	LR	LR	LR	LR	LR	LR	LR

MVA: Multi-Variate Analysis

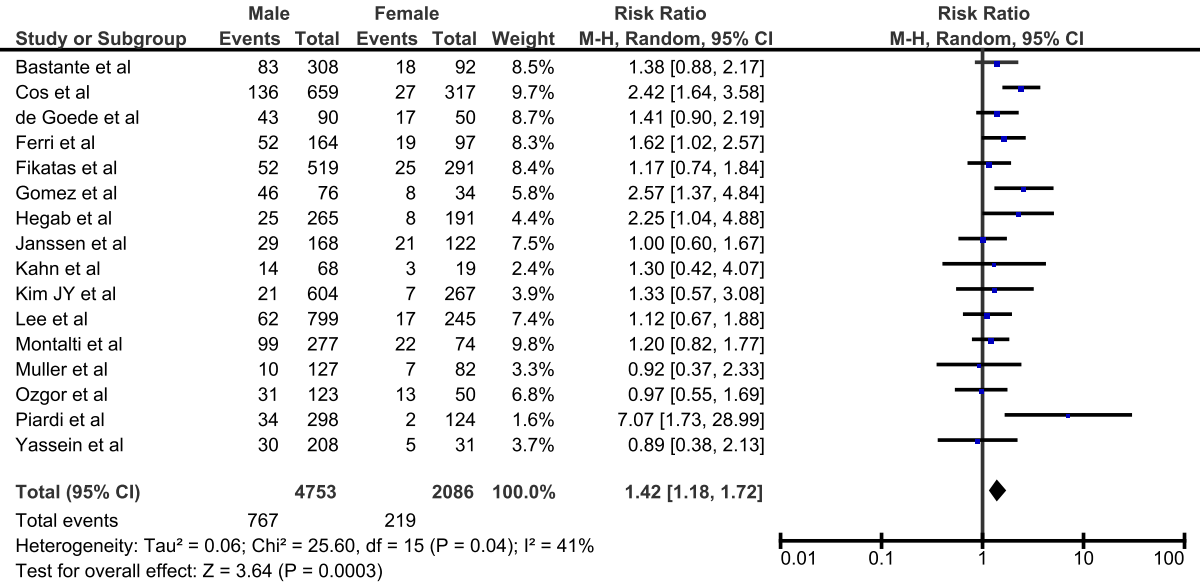
LR: Low risk

Forest plots depicting the meta-analysis of risk factors

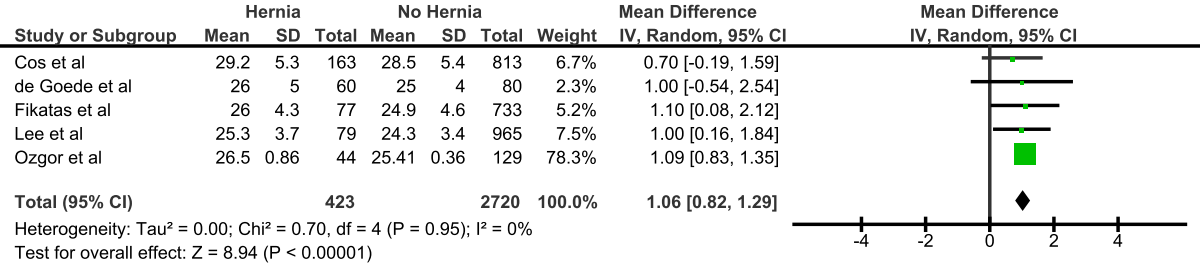
Age



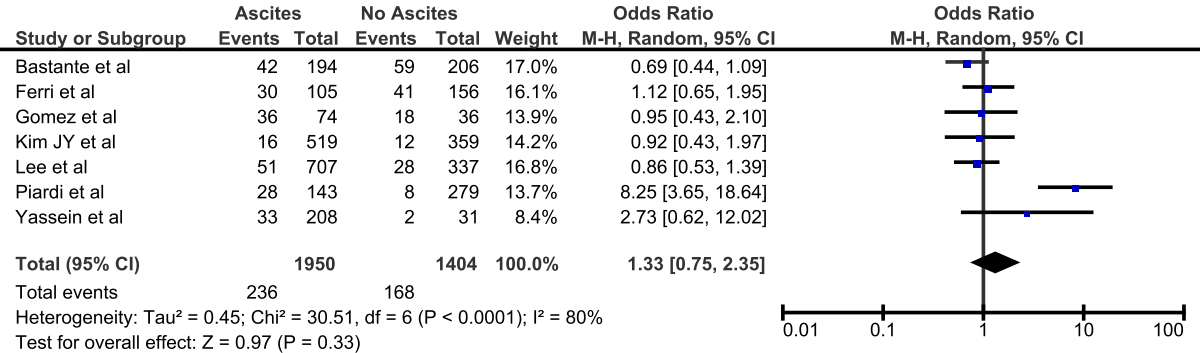
Sex



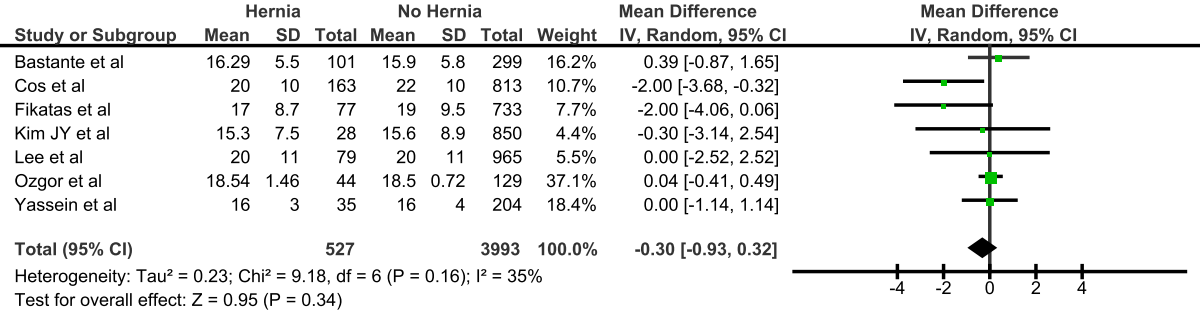
BMI



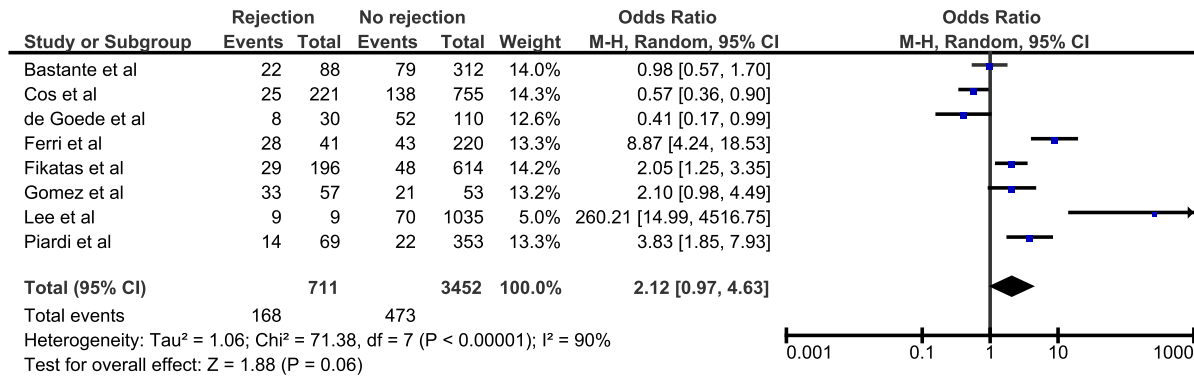
Ascites



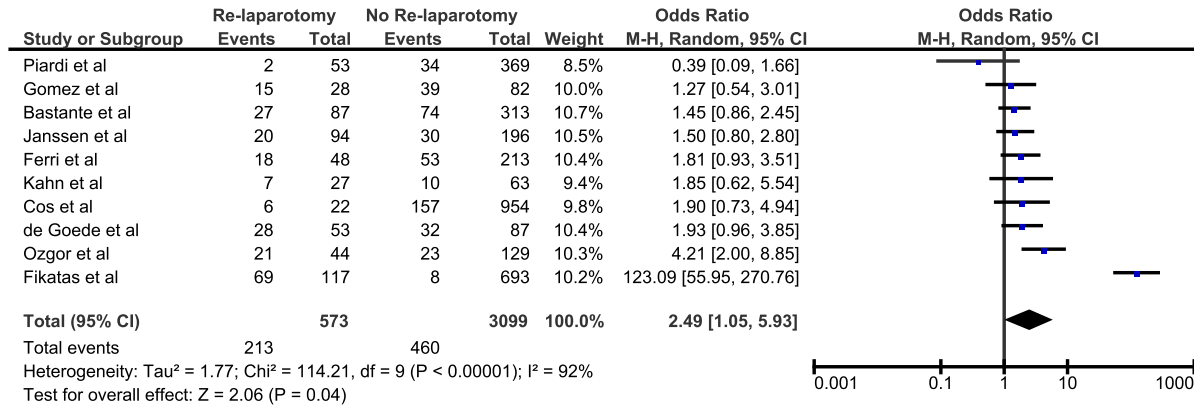
MELD



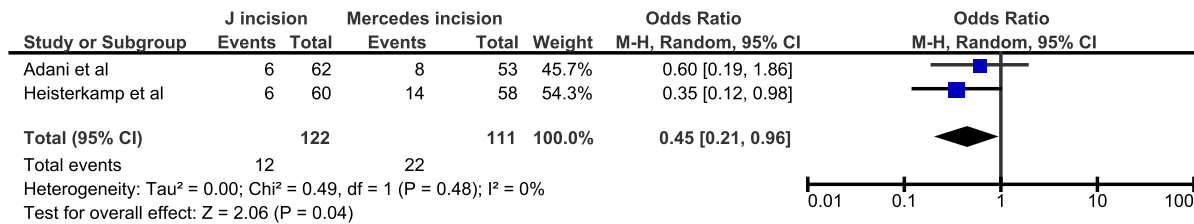
Acute cellular rejection



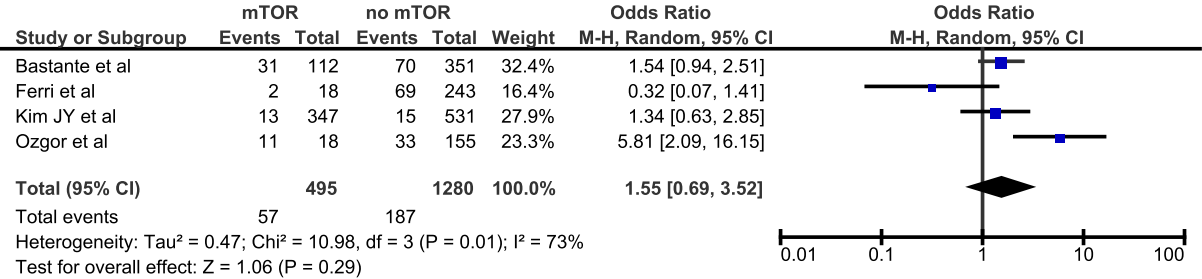
Re-laparotomy



Incision type

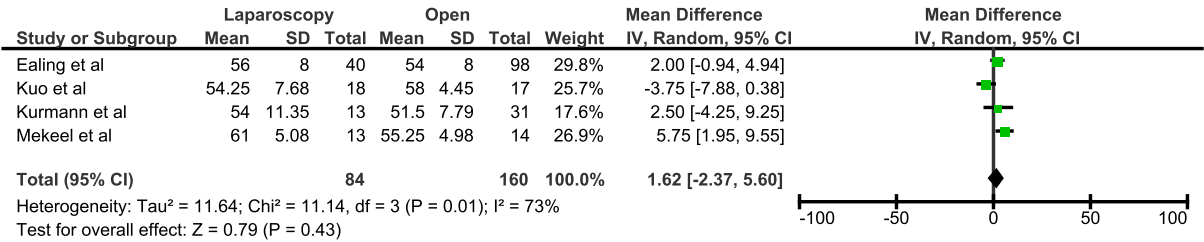


mTOR inhibitor usage

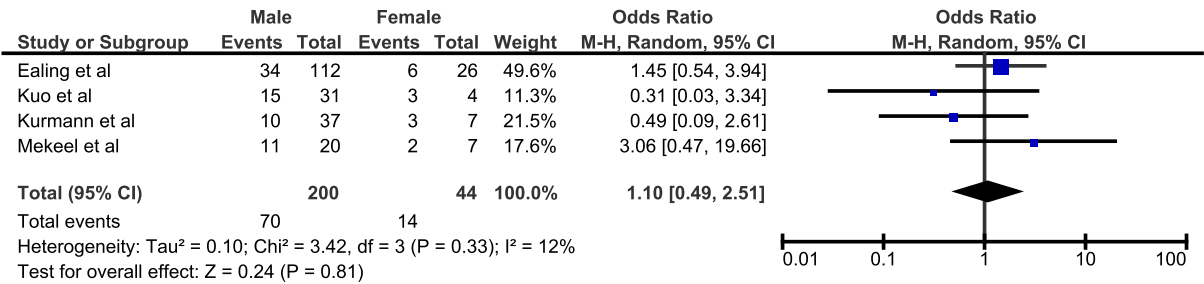


Forest plots depicting the meta-analysis of laparoscopic repair

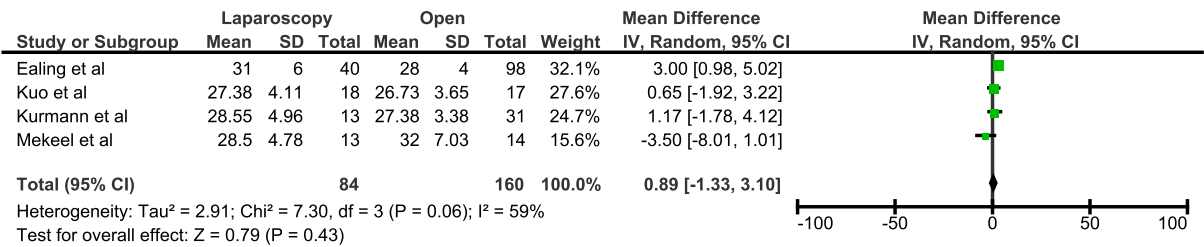
Age



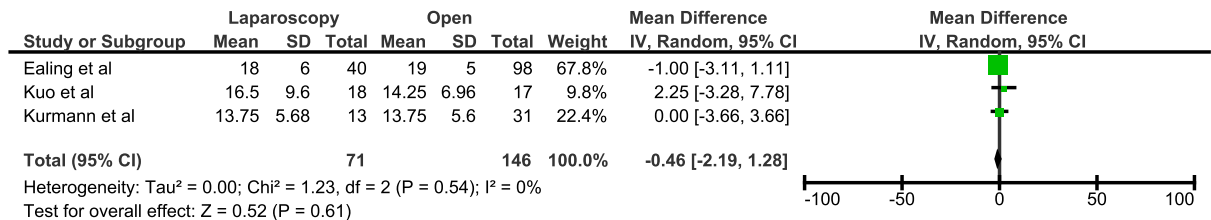
Sex



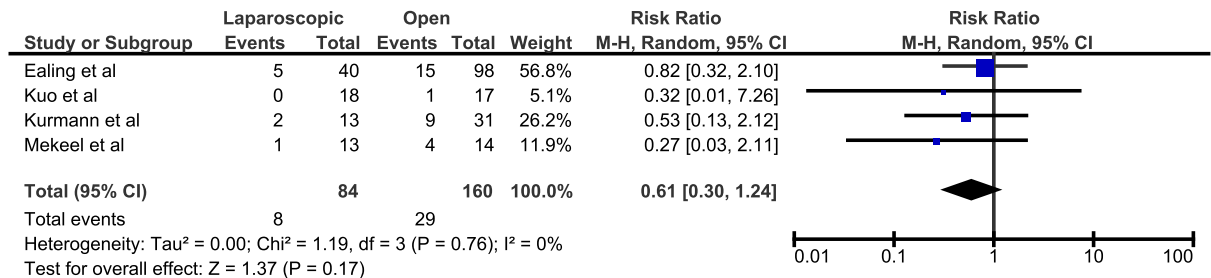
BMI



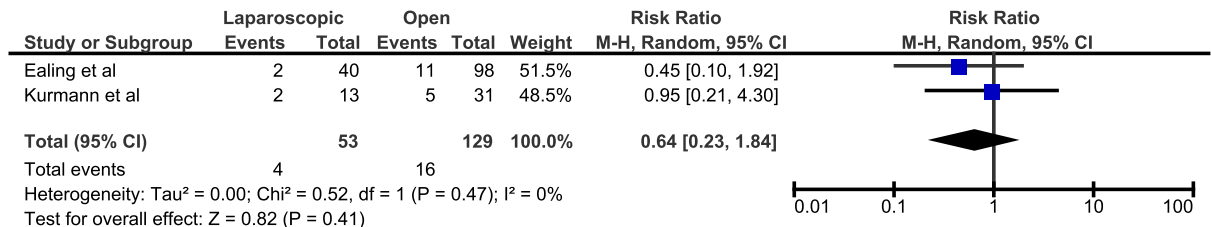
MELD



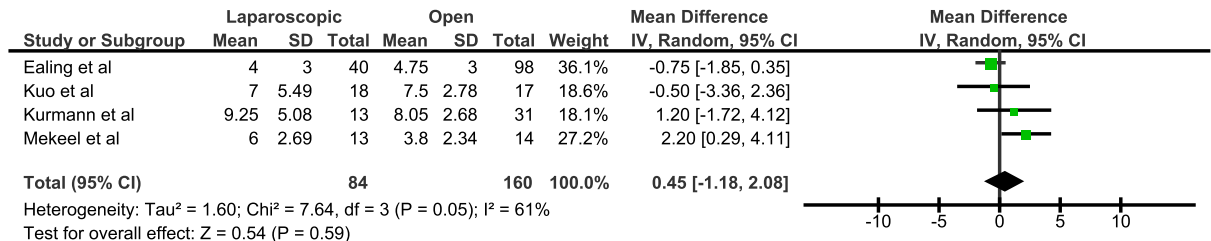
Recurrence



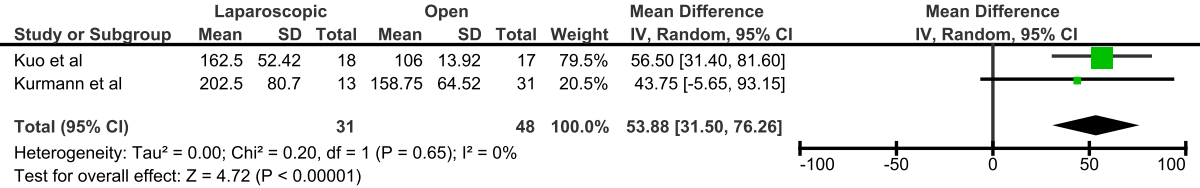
Wound complications



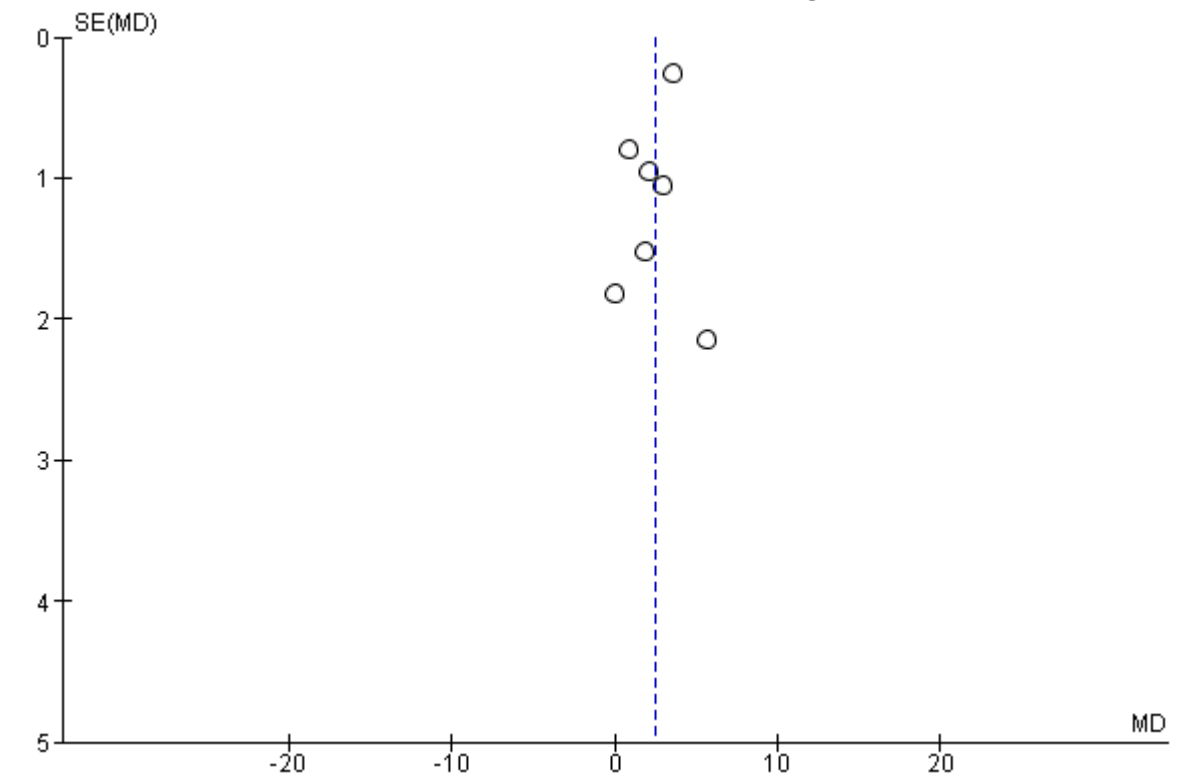
Length of stay



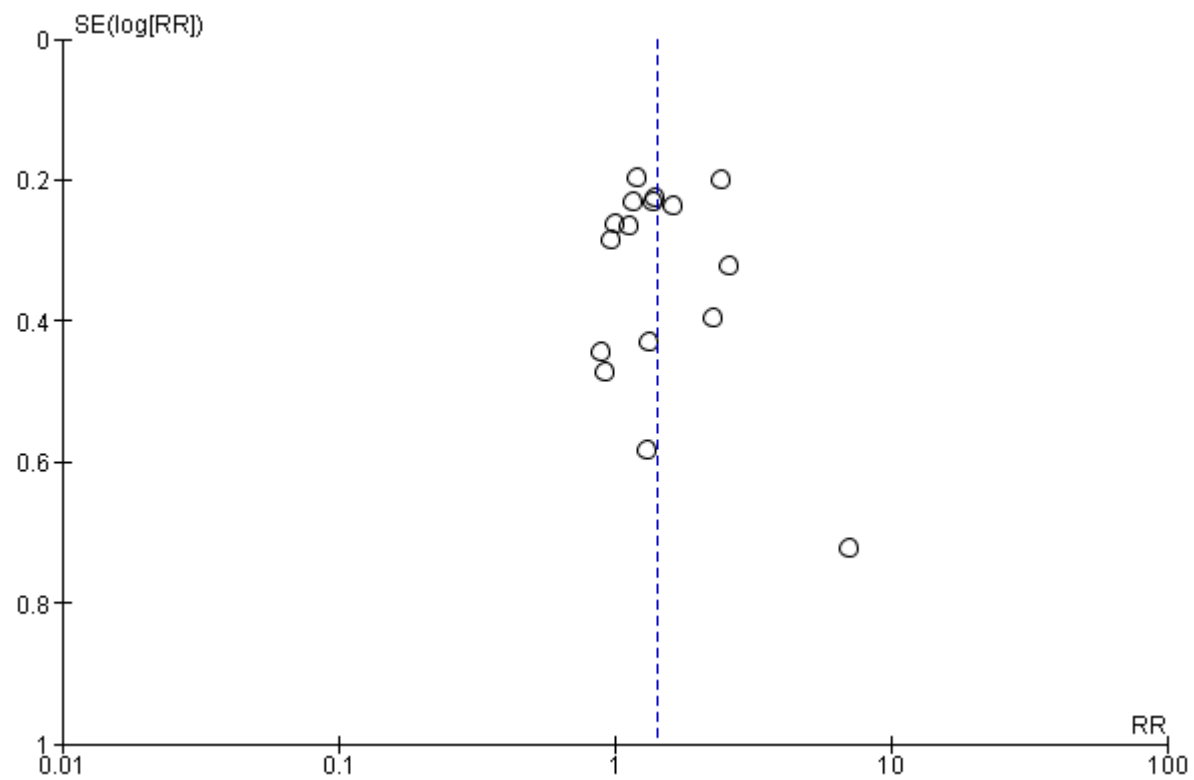
Operation time



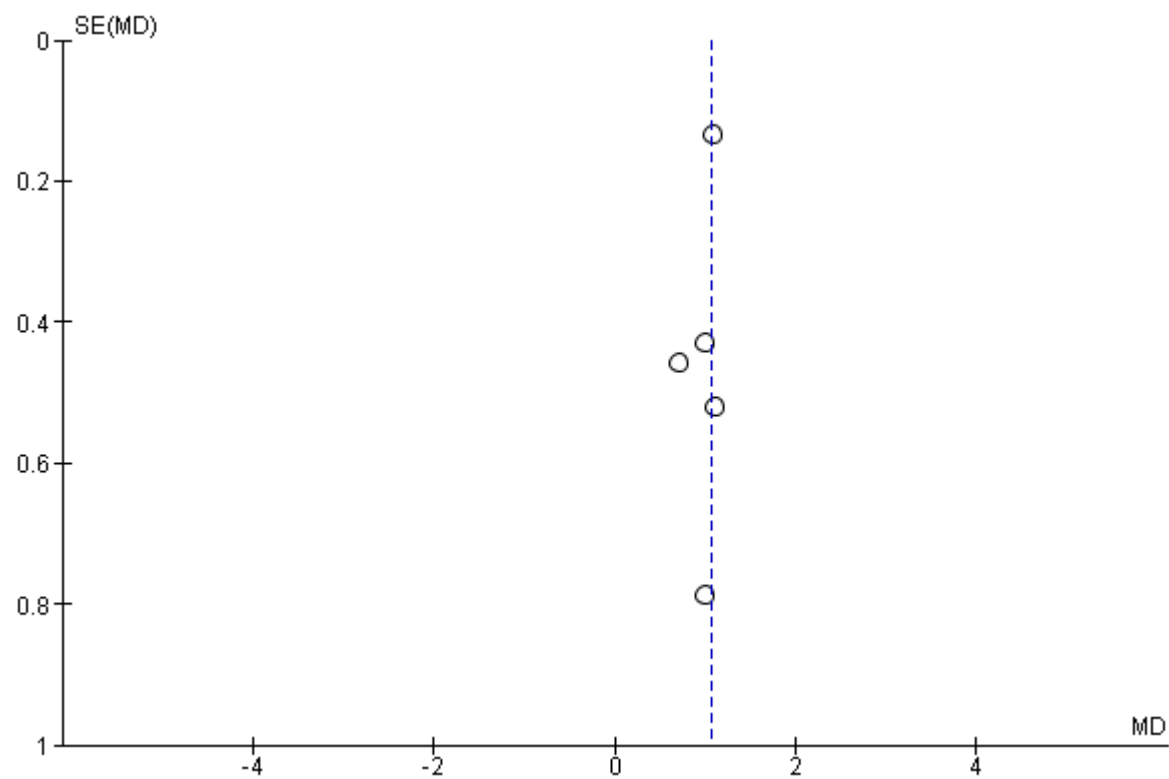
Funnel plot of comparison: 1 Risk factors, outcome: 1.1 Age.



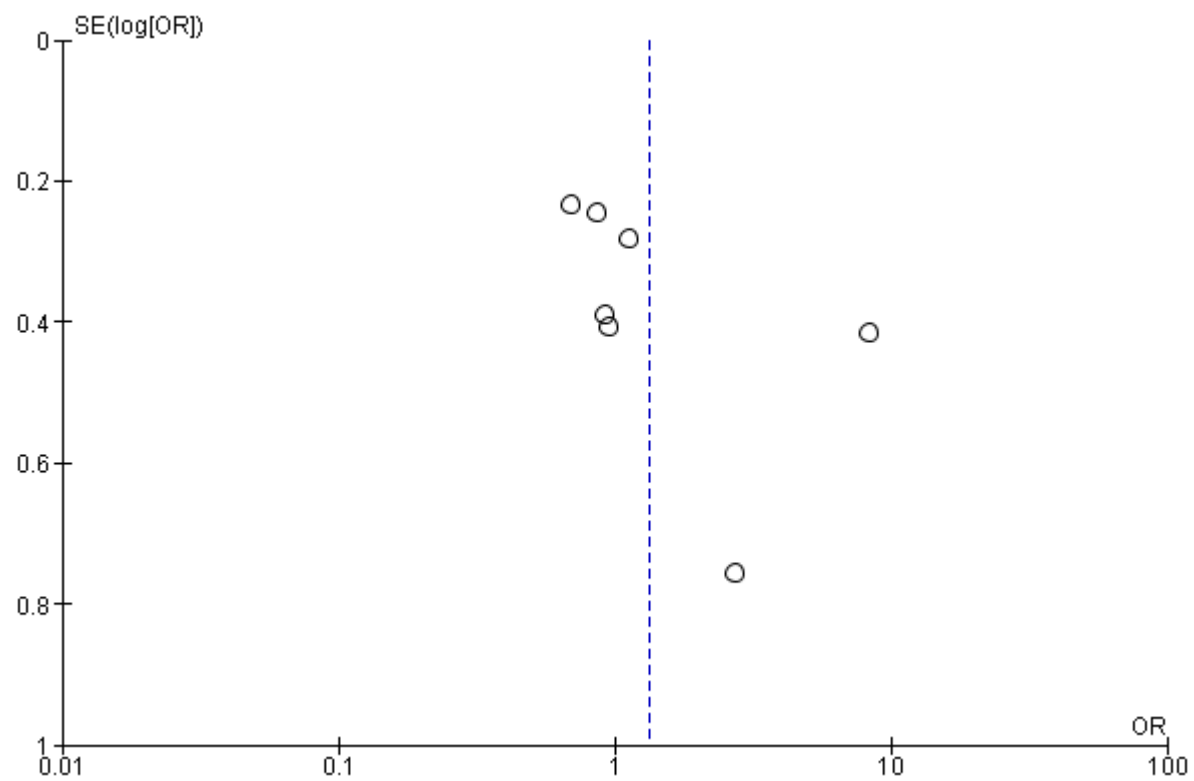
Funnel plot of comparison: 1 Risk factors, outcome: 1.2 Sex.



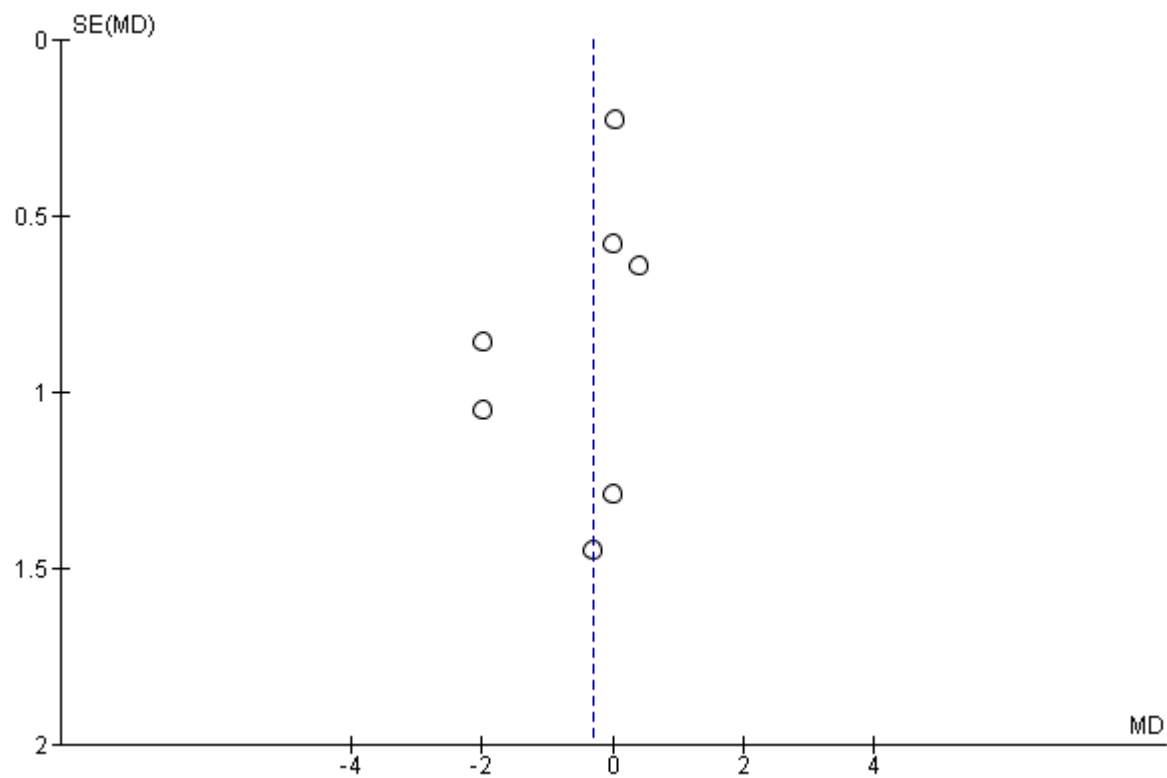
Funnel plot of comparison: 1 Risk factors, outcome: 1.3 BMI.



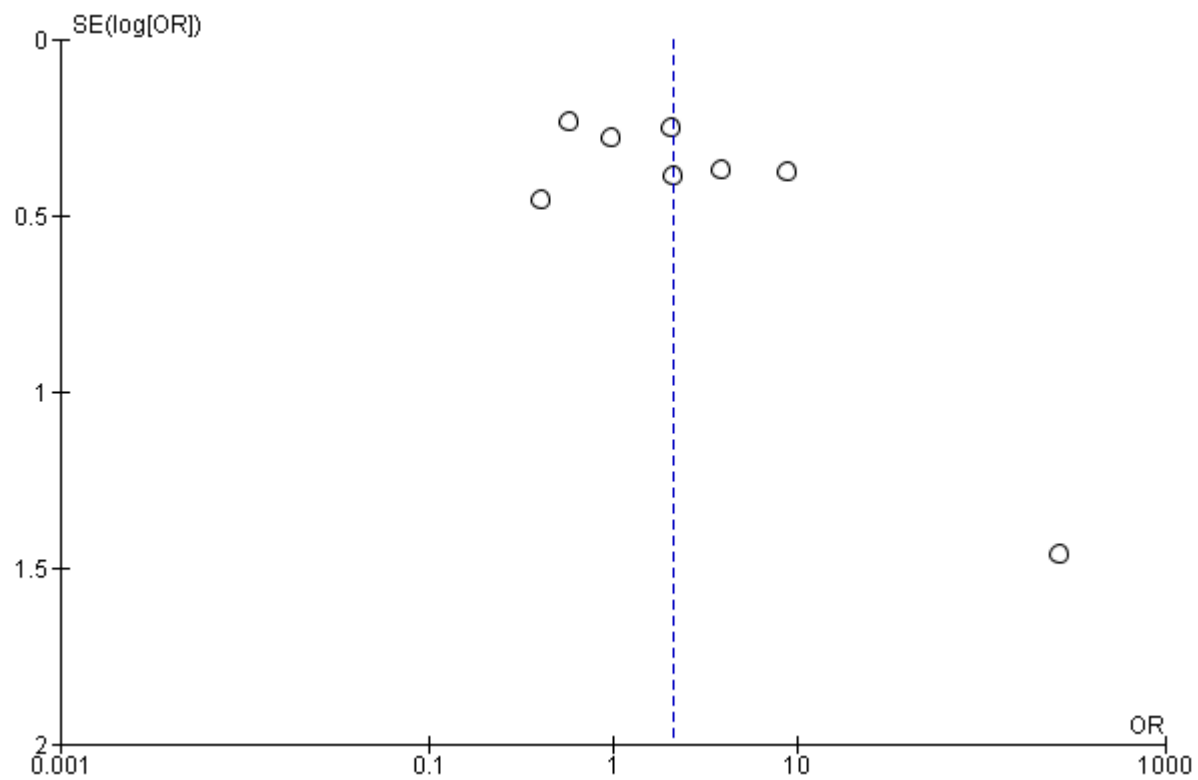
Funnel plot of comparison: 1 Risk factors, outcome: 1.4 Ascites.



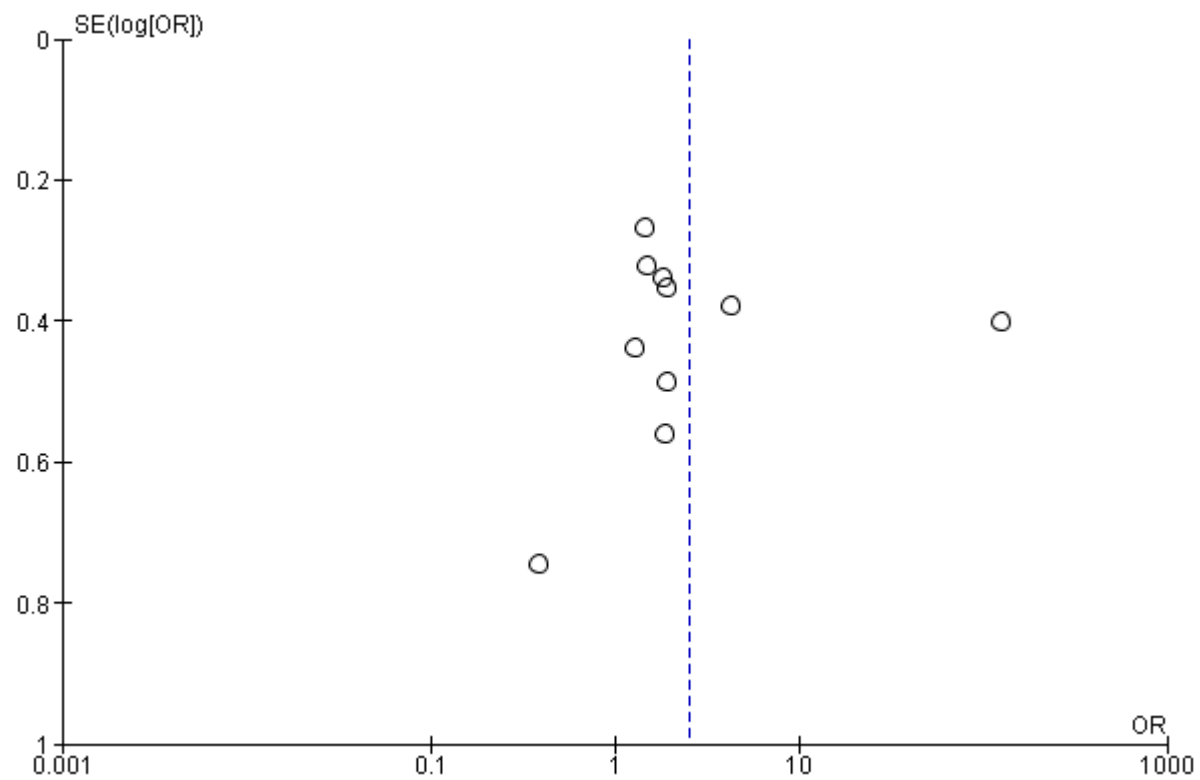
Funnel plot of comparison: 1 Risk factors, outcome: 1.5 MELD.



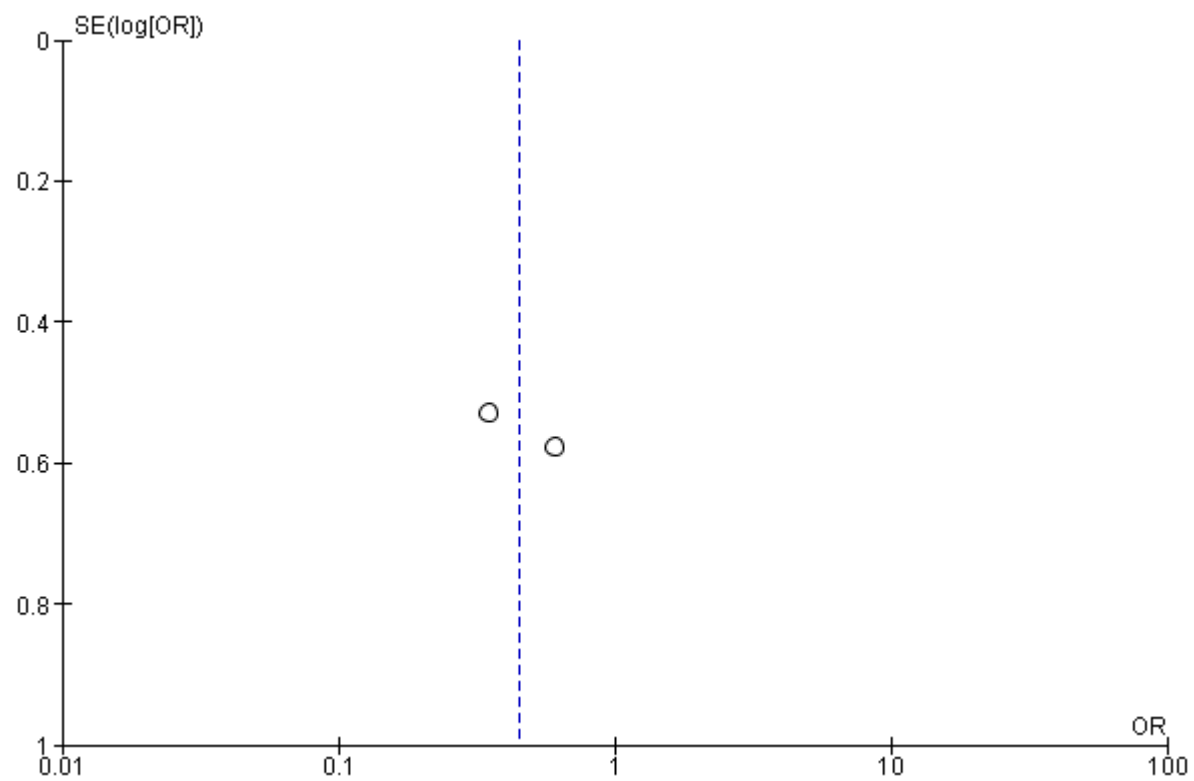
Funnel plot of comparison: 1 Risk factors, outcome: 1.6 Acute rejection.



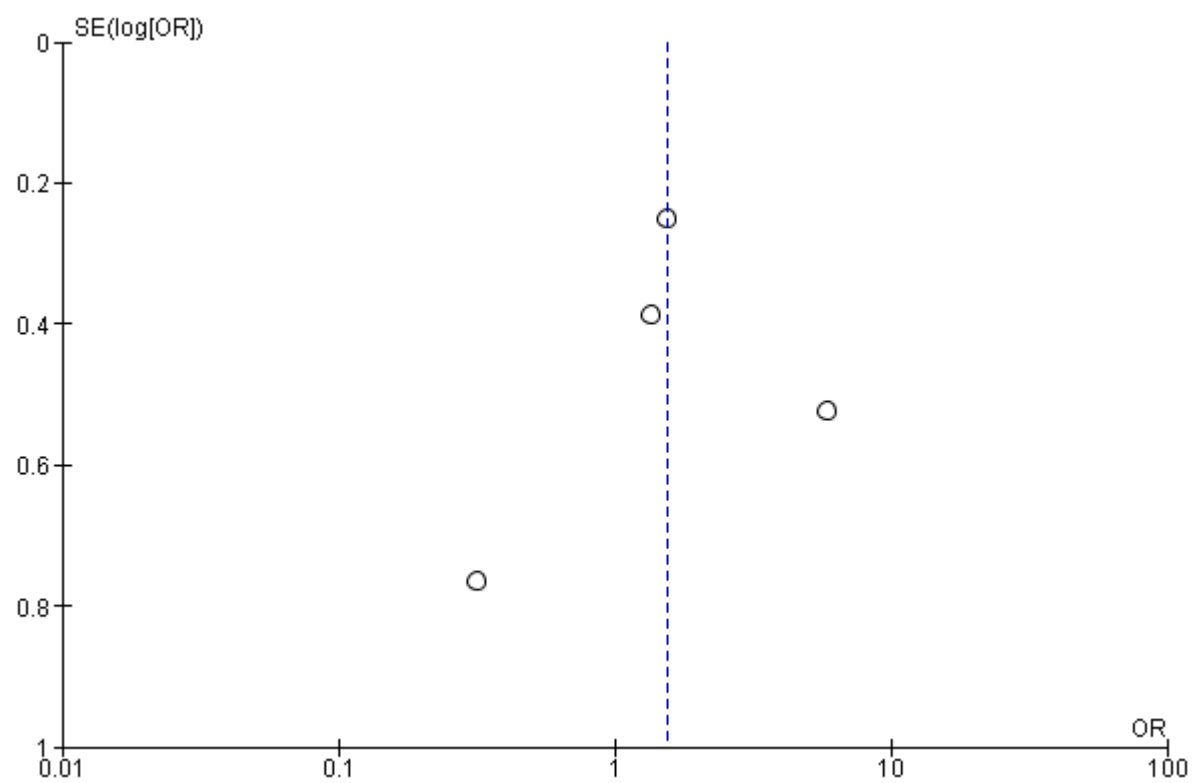
Funnel plot of comparison: 1 Risk factors, outcome: 1.7 Re-do laparotomy.



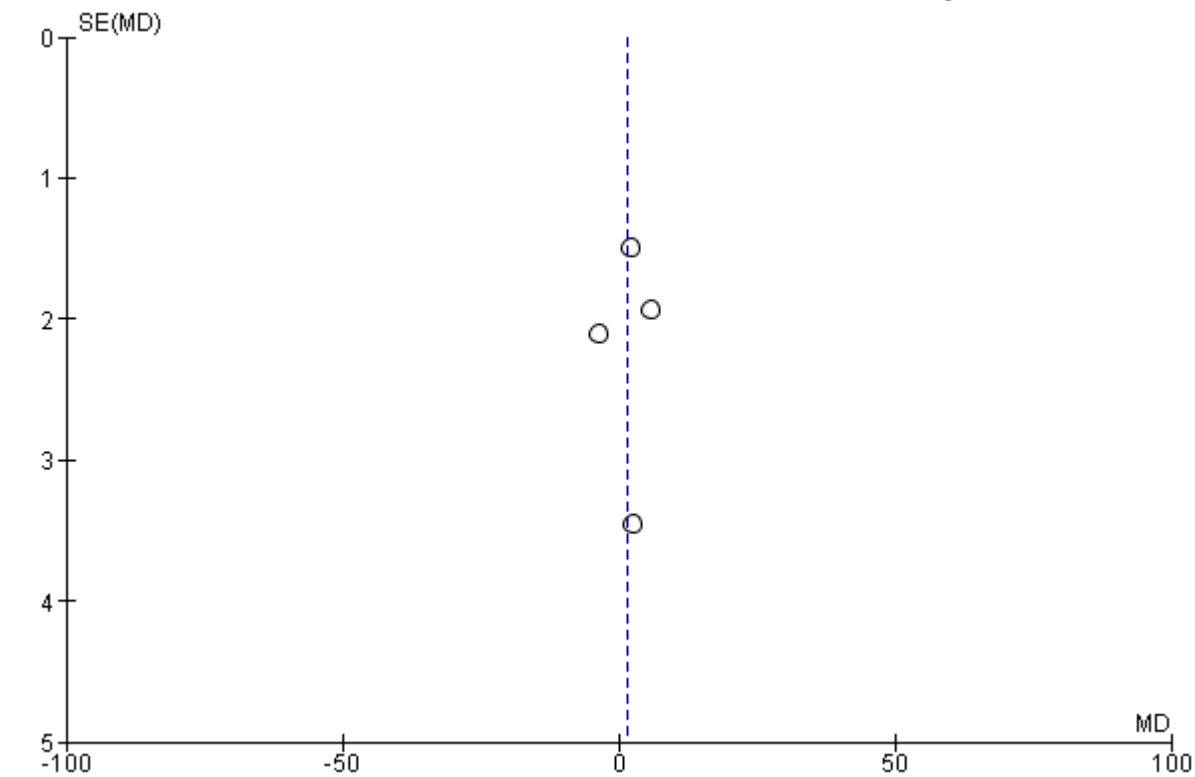
Funnel plot of comparison: 1 Risk factors, outcome: 1.8 J vs Mercedes.



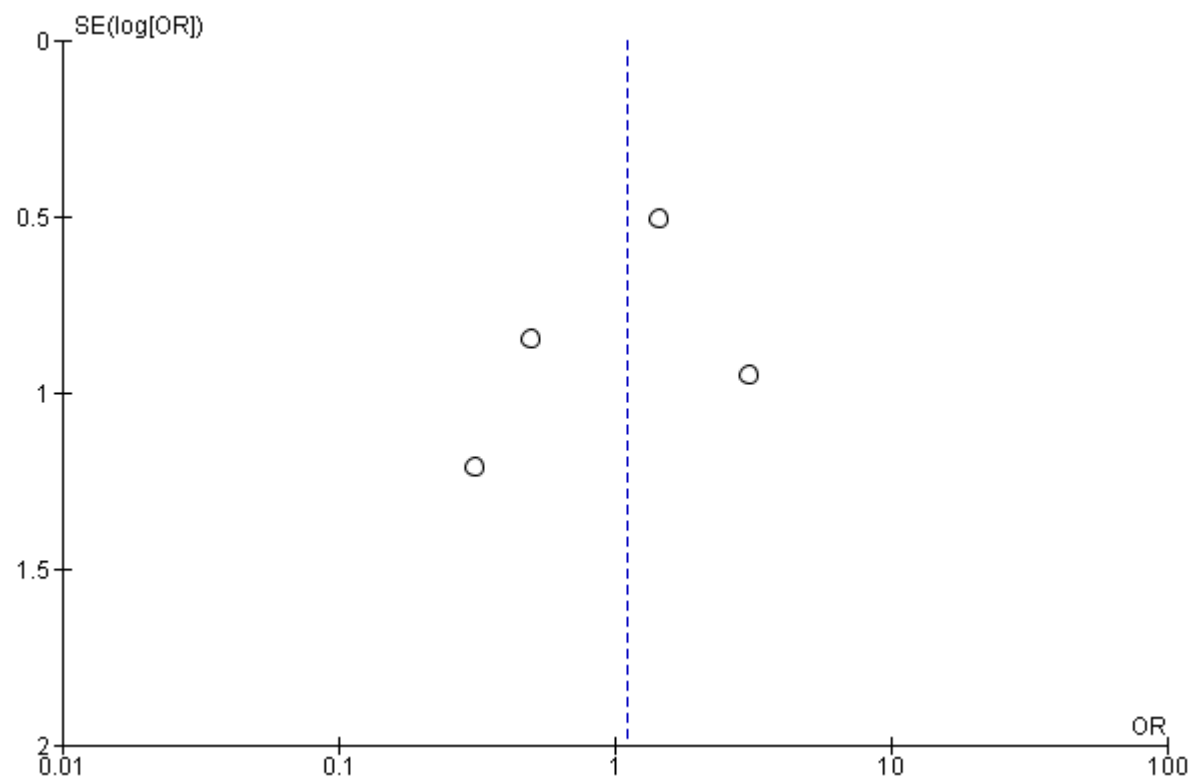
Funnel plot of comparison: 1 Risk factors, outcome: 1.9 mTOR.



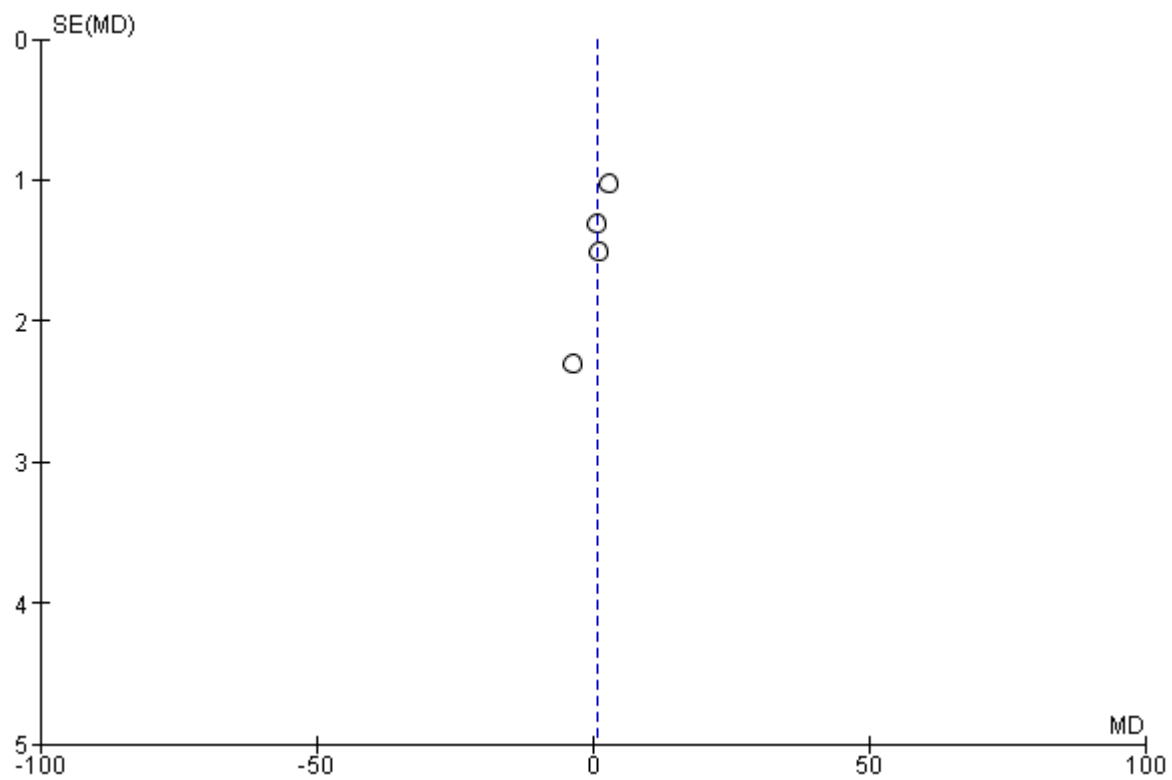
Funnel plot of comparison: 2 laparoscopic vs open, outcome: 2.1 Age.



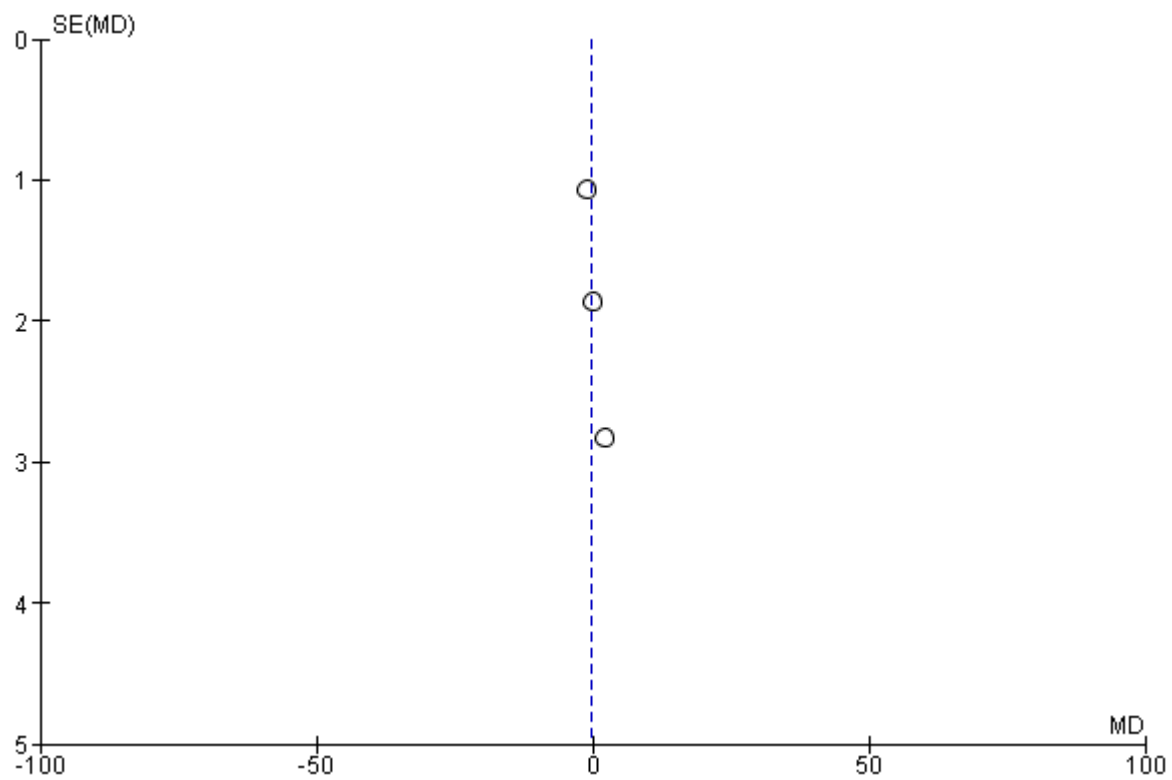
Funnel plot of comparison: 2 laparoscopic vs open, outcome: 2.2 Sex.



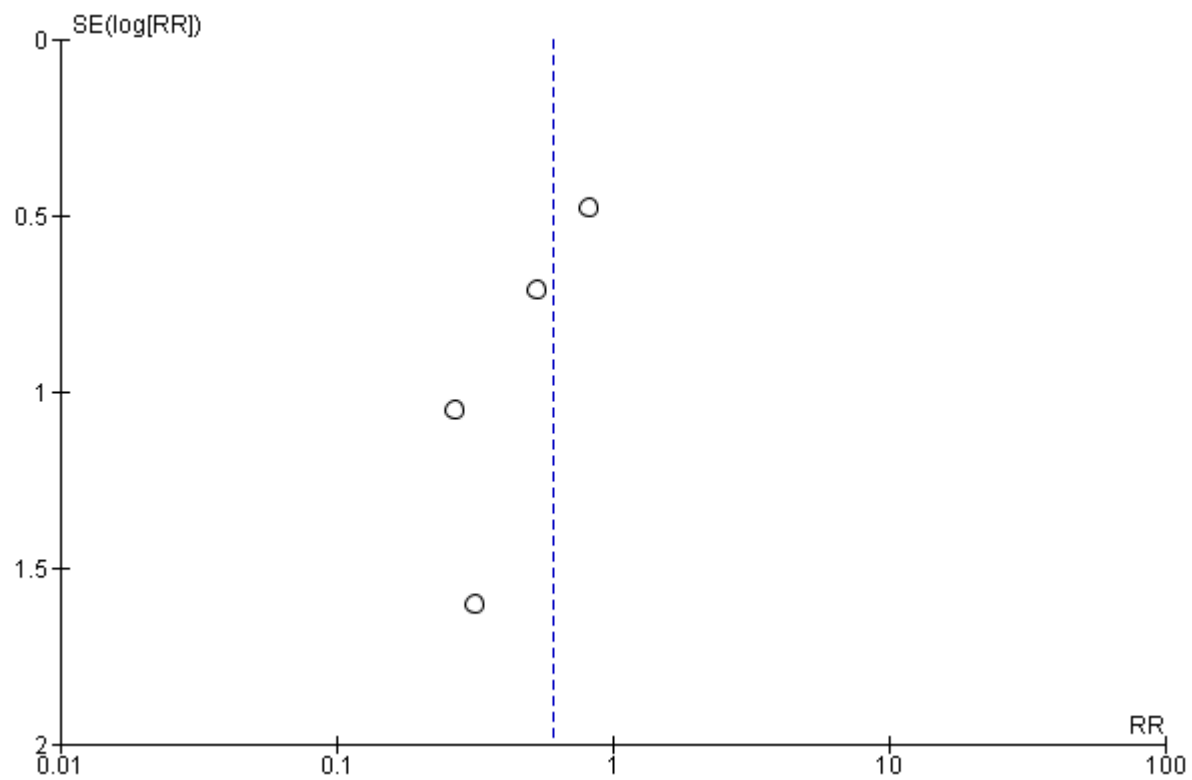
Funnel plot of comparison: 2 laparoscopic vs open, outcome: 2.3 BMI.



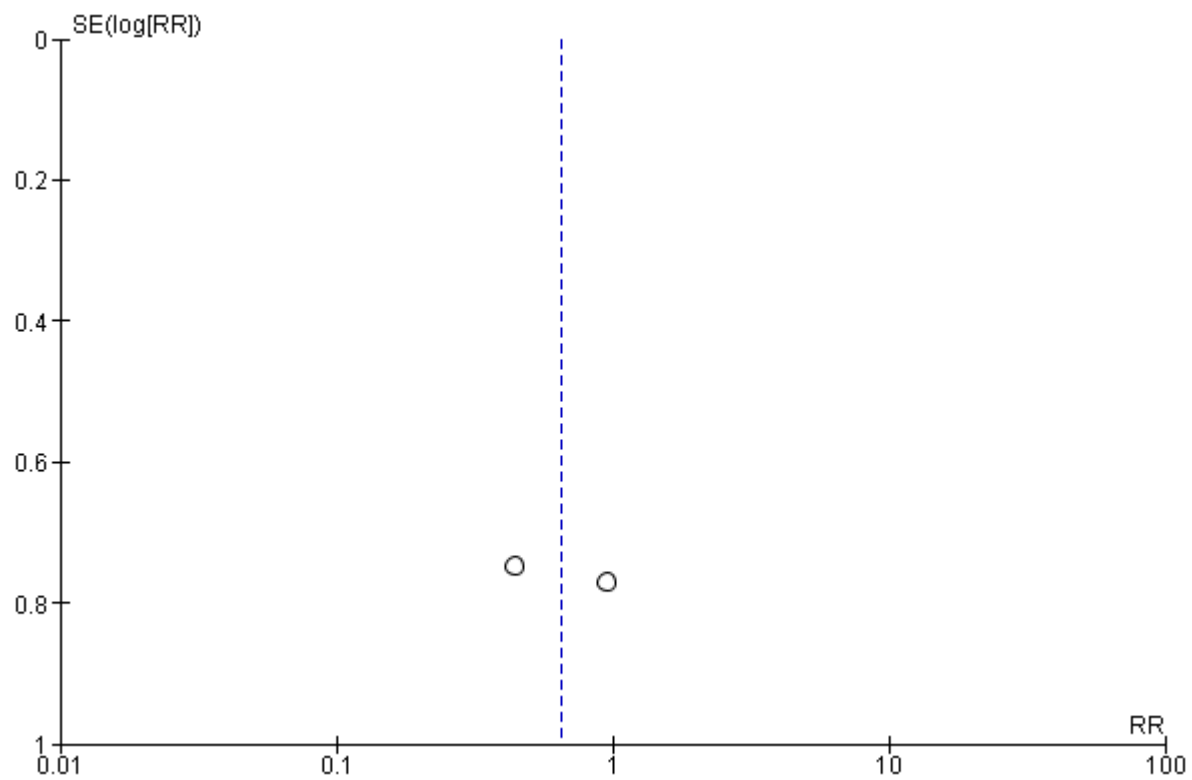
Funnel plot of comparison: 2 laparoscopic vs open, outcome: 2.4 MELD.



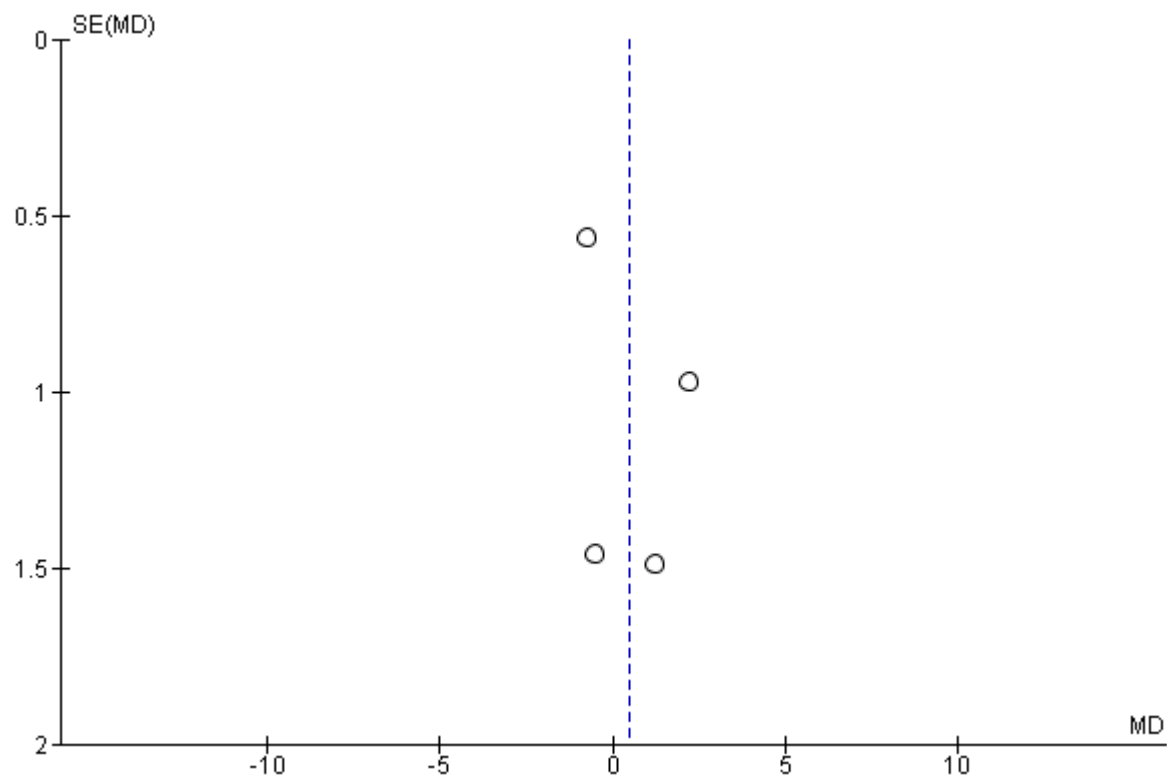
Funnel plot of comparison: 2 laparoscopic vs open, outcome: 2.5 Recurrence.



Funnel plot of comparison: 2 laparoscopic vs open, outcome: 2.6 Wound Complications.



Funnel plot of comparison: 2 laparoscopic vs open, outcome: 2.7 Length of stay.



Funnel plot of comparison: 2 laparoscopic vs open, outcome: 2.8 Operating time.

