

Robotic-assisted surgery versus open surgery in Endometrial Cancer: A systematic review and meta-analysis

You Lim Kim* Jae Kyung Suh*

* National Evidence-based Healthcare Collaborating Agency (NECA), Seoul, Republic of Korea

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Objective

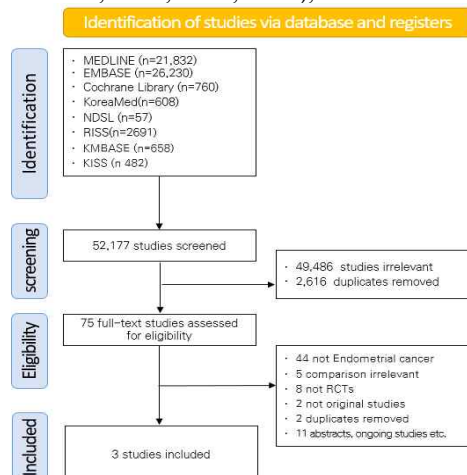
Robot-assisted surgery (RAS) is a newer technology compared with the open surgical approaches used in endometrial cancer. RAS requires rigorous evaluation but high-quality evidence of RAS is insufficient. This study aims to evaluate the safety and effectiveness of robotic-assisted surgery (RAS) in endometrial cancer (EC) compared with open surgery (OS).

Methods

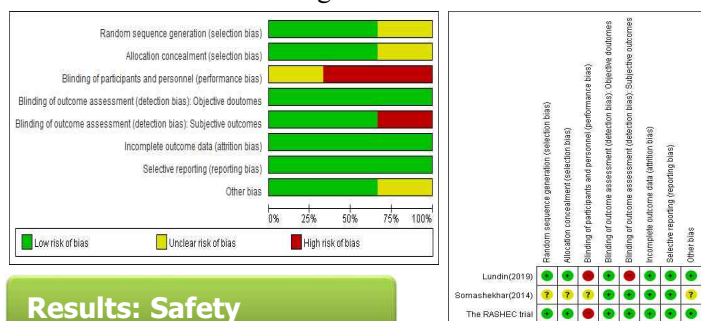
We searched the Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE and EMBASE via Ovid, on 12 April 2022. The study involved randomized controlled trials (RCTs). Two authors independently assessed studies for inclusion, risk of bias, and extracted study data. We extracted safety (complication, conversion to OS, incidence of readmission) and effectiveness (operative time (OT), bleeding loss (BL), length of stay (LOS), the number of total resection lymph nodes(LNs), quality of life (QoL), and survival outcomes.

Results

A total of three RCTs were included (Lundin et al., 2019; RASHEC trial (Salehi et al., 2019, 2018, 2017); Somashekhar et al., 2014).



Overall, we considered studies to be at moderate risk of bias. But 'Performance bias' were 2 high and 1 unclear.



Results: Safety

A total of three RCTs were included. There was no difference in complications related to surgery and the incidence of readmission (one RCT) between RAS and OS. The conversion to OS did not occur in RAS.

Figure 1. Complications



Table 1. Readmission

Literatures	Time point	Robot-assisted			Open			p-value
		Total	Event	%	Total	Event	%	
RASHEC trial(Salehi(2019,2017))	post 1 year	48	7	14.6	48	6	12.5	1.00
	post	48	3	6.3	48	5	10.4	NR
NA, Not Report								

Results: Effectiveness

In two RCTs with meta-analysis, OT in RAS were significantly longer($p < 0.00001$), LOS in RAS were significantly shorter ($p < 0.00001$). And the other one RCT OT in RAS were significantly longer($p < 0.001$), LOS in RAS were significantly shorter($p < 0.001$).

Figure 2. OT(minutes)

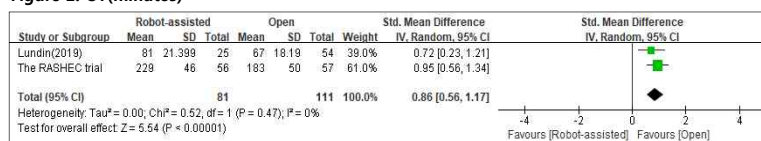
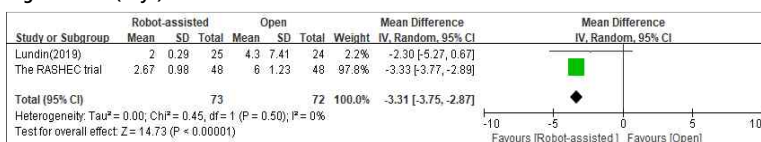
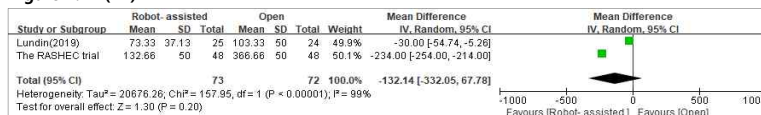


Figure 3. LOS(days)



In two RCTs with meta-analysis, BL were not different between two groups($p = 0.20$) but their heterogeneities was high, but in the other one RCT BT in RAS were significantly lower($p < 0.001$).

Figure 4. BL(ml)



Two RCTs reported the number of total resection LNs but the results were inconsistent. At 5-42 days after the surgery in one RCT, the results of the EQ-5D index reported better QoL in the RAS($p < 0.01$). There is no study that reported survival outcomes.

Table 2. The number of total LNs and QoL

Literatures			Robot-assisted			open			p-value
			Total	mean	SD	Total	mean	SD	
The number of total LNs									
RASHEC trial (Salehi (2017))			48	42	15.9	48	50	18.8	<0.001
Somashekhar (2014)			25	30.56	–	25	27.6	–	0.071
Literature	Tool	Time point							
QoL									
Lundin (2019)	SF-36 physical component	after 42 day	25	44.7	9.9	24	41.1	11.3	–
	SF-36 day mental component		25	53.2	7.6	24	50.8	8.4	–
	EQ-5D health index	0-4 day	25	–	–	24	–	–	0.06
		5-42 day	25	–	–	24	–	–	<0.01
Standard deviation, SD									

Conclusion

RAS could be a viable alternative to OS for EC on the basis of current evidence with complication, readmission and conversion. However, more rigorous studies focus on inconclusive aspects are required to support the benefit of RAS.

References

Lawrie TA., et al. Robot-assisted surgery in gynaecology. Cochrane Database of Systematic Reviews, 2019; 4.