

The impact of bilateral transient occlusion of uterine and utero-ovarian arteries on surgical blood loss during laparoscopic myomectomy: A systematic review and meta-analysis of randomized controlled trials

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Background

Uterine leiomyomas, commonly referred to as fibroids, are the most prevalent benign tumors in women of reproductive age and are influenced by estrogen. Although many fibroids are asymptomatic, 25–50% of cases can lead to abnormal uterine bleeding, pelvic pain, urinary or intestinal problems, and infertility.

The uterus primarily receives its blood supply from the uterine arteries, which account for approximately 95% of the uterine blood flow, while the remaining blood flow comes from the ovarian arteries. Recently, a novel approach has been introduced that involves temporarily occluding both the uterine and utero-ovarian arteries simultaneously during the procedure, potentially reducing blood loss further. However, this method can be challenging and time-consuming, with its effectiveness has not yet been fully established.

Objectives

The aim of our study was to s to assess the impact of temporarily clamping the uterine and utero-ovarian arteries on operative blood loss during laparoscopic myomectomy.

Methods

Four different databases (PubMed, Cochrane Library, Scopus, and ISI web of science) were searched for the available trials from inception to May 2024.

-Patients: Women with symptomatic fibroids scheduled to undergo laparoscopic myomectomy.

-Intervention: Bilateral temporary occlusion of the uterine and utero-ovarian arteries.

-Control: Absence of arterial occlusion.

-Outcomes: Assessment of blood loss and change in hemoglobin.

- Study design: Randomized controlled trials.

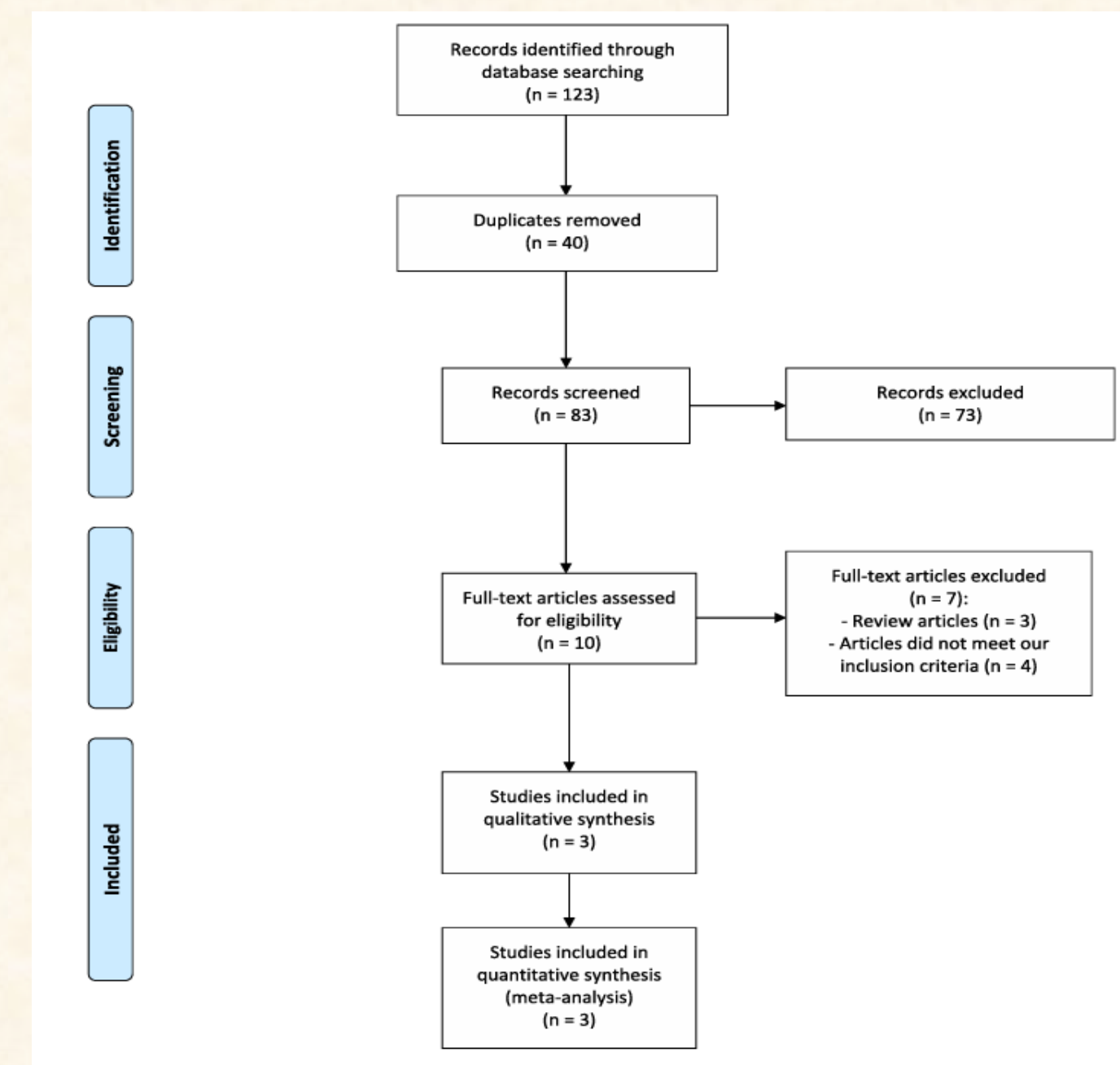


Figure 1. PRISMA flow diagram.



Figure 2. Risk of bias summary.

Results

Three RCTs met our inclusion criteria with a total number of 275 patients, of which 139 were in the intervention group, and 136 were in the control group.

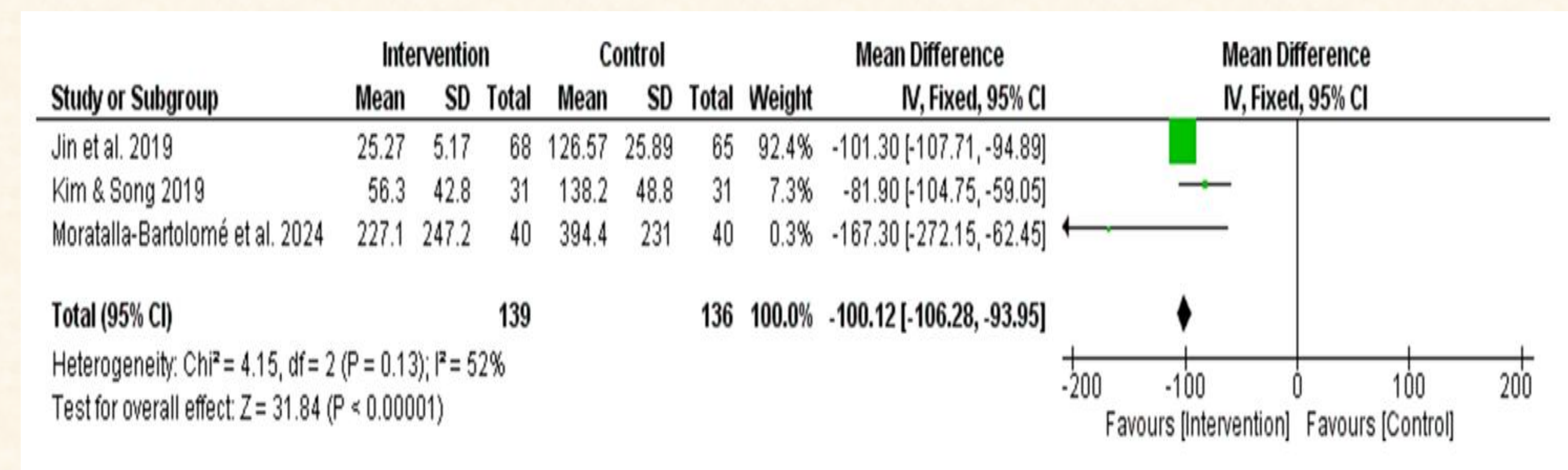


Figure 3. Blood loss.

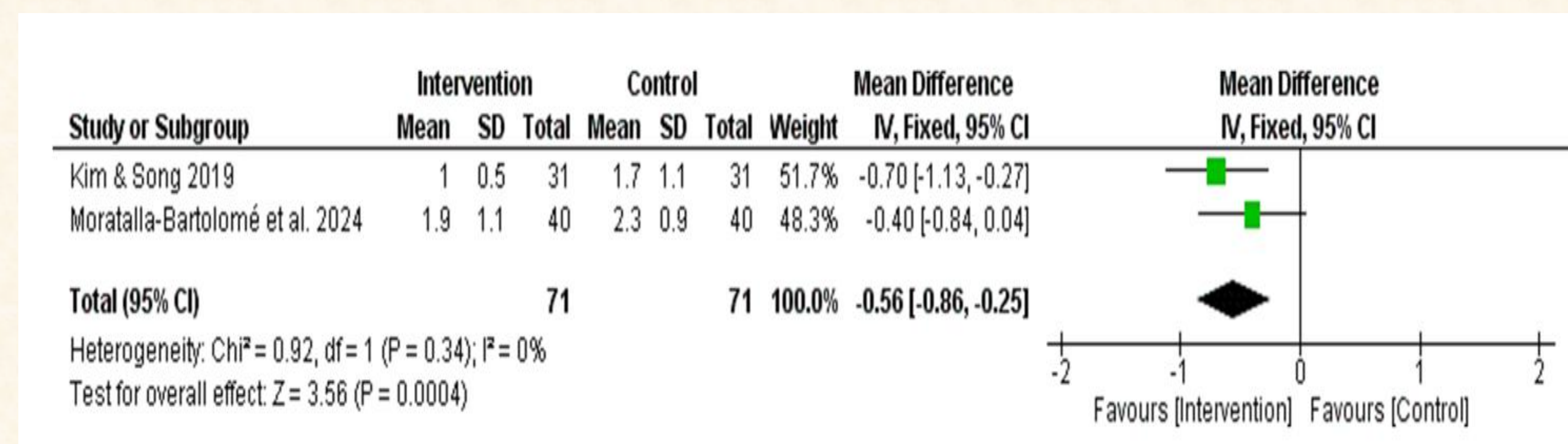


Figure 4. Change in hemoglobin.

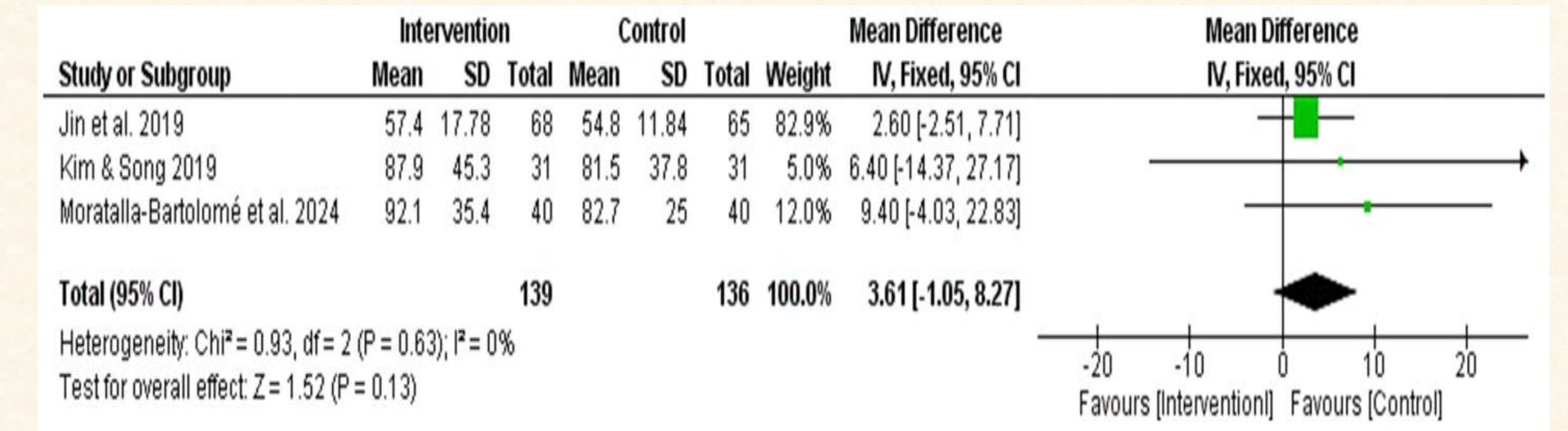


Figure 5. Operation time.

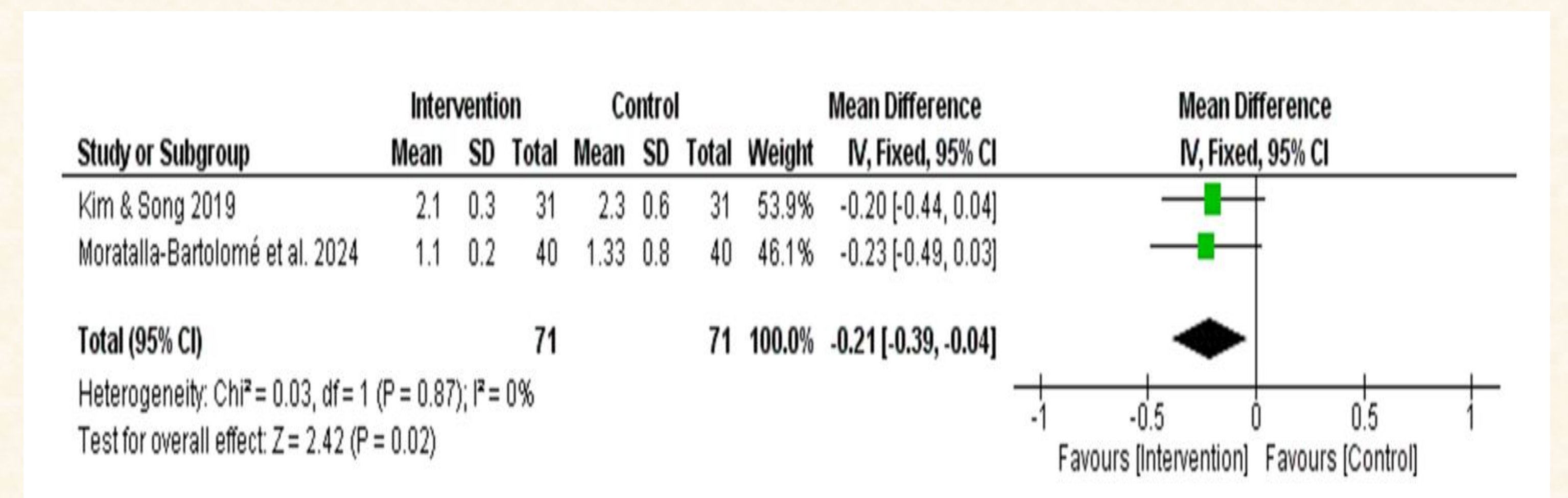


Figure 6. Length of hospital stay.

Conclusion

The temporary bilateral occlusion of the uterine and utero-ovarian arteries is an effective method for reducing surgical blood loss, hemoglobin decline, and hospital stay duration during laparoscopic myomectomy. However, additional studies are needed to validate these findings.

Limitations of the Study:

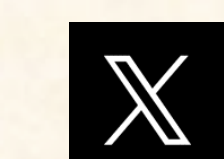
The main limitations of our meta-analysis are the limited number of studies that met our inclusion criteria and different demographic characteristics of the included studies.

Reference

- Jin L, Ji L, Shao M, Hu M. Laparoscopic myomectomy with temporary bilateral uterine artery and utero-ovarian vessels occlusion compared with traditional surgery for uterine fibroids: blood loss and recurrence. *Gynecol Obstet Invest* 2019;84:548–54.
- Kim HC, Song T. Temporary simultaneous two-arterial occlusion for reducing operative blood loss during laparoscopic myomectomy: a randomized controlled trial. *Surg Endosc* 2019;33:2114–20.

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