

## Endometrial Ablation and Resection Versus Hysterectomy for Heavy Menstrual Bleeding: A Systematic Review and Meta-Analysis of Effectiveness and Complications

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**Abstract :** Context: A meta-analysis of randomized controlled trials (RCTs) comparing hysterectomy versus endometrial ablation and resection in the management of heavy menstrual bleeding. Objective: To evaluate the clinical efficacy, satisfaction rates and adverse events of hysterectomy compared to more minimally invasive techniques in the treatment of HMB. Evidence Acquisition: A literature search was performed for all RCTs and quasi-RCTs comparing hysterectomy with either endometrial ablation or resection of both. The search had no language restrictions and was last updated in June 2020 using MEDLINE, EMBASE, Cochrane Central Register of Clinical Trials, PubMed, Google Scholar, PsycINFO, Clinicaltrials.gov and Clinical trials. EU. In addition, a manual search of the abstract databases of the European Haemophilia Conference on women's health was performed and further studies were identified from references of acquired papers. The primary outcomes were patient-reported and objective reduction in heavy menstrual bleeding up to 2 years and after 2 years. Secondary outcomes included satisfaction rates, pain, adverse events short and long term, quality of life and sexual function, further surgery, duration of surgery and hospital stay and time to return to work and normal activities. Data were analysed using RevMan software. Evidence synthesis: 12 studies and a total of 2028 women were included (hysterectomy: n = 977 women vs endometrial ablation or resection: n = 1051 women). Hysterectomy was compared with endometrial ablation only in five studies (Lin, Dickersin, Sesti, Jain, Cooper) and endometrial resection only in five studies (Gannon, Schulpher, O'Connor, Crosignani, Zupi) and a mixture of the Ablation and Resection in two studies (Elmantwe, Pinion). Of the 12 studies, 10 reported women's perception of bleeding symptoms as improved. Meta-analysis showed that women in the hysterectomy group were more likely to show improvement in bleeding symptoms when compared with endometrial ablation or resection up to 2-year follow-up (RR 0.75, 95% CI 0.71 to 0.79, I<sup>2</sup> = 95%). Objective outcomes of improvement in bleeding also favored hysterectomy. Patient satisfaction was higher after hysterectomy within the 2 years follow-up (RR: 0.90, 95%CI: 0.86 to 0.94, I<sup>2</sup>:58%), however, there was no significant difference between the two groups at more than 2 years follow up. Sepsis (RR: 0.03, 95% CI 0.002 to 0.56; 1 study), wound infection (RR: 0.05, 95% CI: 0.01 to 0.28, I<sup>2</sup>: 0%, 3 studies) and Urinary tract infection (UTI) (RR: 0.20, 95% CI: 0.10 to 0.42, I<sup>2</sup>: 0%, 4 studies) all favoured hysteroscopic techniques. Fluid overload (RR: 7.80, 95% CI: 2.16 to 28.16, I<sup>2</sup>:0%, 4 studies) and perforation (RR: 5.42, 95% CI: 1.25 to 23.45, I<sup>2</sup>: 0%, 4 studies) however favoured hysterectomy in the short term. Conclusions: This meta-analysis has demonstrated that endometrial ablation and endometrial resection are both viable options when compared with hysterectomy for the treatment of heavy menstrual bleeding. Hysteroscopic procedures had better outcomes in the short term with fewer adverse events including wound infection, UTI and sepsis. The hysterectomy performed better when measuring more long-term impacts such as recurrence of symptoms, overall satisfaction at two years and the need for further treatment or surgery.

**Keywords :** menorrhagia, hysterectomy, ablation, resection

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