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Is Uterine Artery Embolization (UAE) Safe and Effective for Treatment of Uterine Fibroids?

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Does epidural analgesia slow the progress of labor?

Evidence-Based Answer

Epidural anesthesia does not affect the duration of the first stage of labor, but does prolong the second stage by an average of 14 minutes (SOR: **A**, meta-analysis of RCTs).

A 2011 Cochrane review examined multiple outcomes related to epidural analgesia during labor, including length of labor.¹ Significant heterogeneity was noted in labor protocols, epidural techniques, and patient demographics in the 38 trials evaluated.

The length of the first stage of labor was not significantly increased in the patients with epidural analgesia compared with patients without epidurals (11 trials; N=2,981; mean increase 19 minutes; 95% CI, -13 to 50). The second stage of labor was longer in patients with epidural analgesia compared with women without epidurals (13 trials; N=4,233; mean difference 14 minutes; 95% CI, 7–21). Most trials analyzed in the review were randomized, but few were blinded.¹

The review examined other important outcomes related to length of labor. Women with epidural analgesia had an increased rate of assisted vaginal deliveries (23 trials; risk ratio [RR] 1.4; 95% CI, 1.3–1.6) and an increased rate of labor augmentation with oxytocin (13 trials; RR 1.2; 95% CI, 1.0–1.4). There was no significant effect of epidural anesthesia on the rate of cesarean sections for dystocia (27 trials; RR 0.90; 95% CI, 0.73–1.1) or in neonatal outcomes such as Apgar score of less than 7 at 5 minutes (18 trials; RR 0.80; 95% CI, 0.54–1.2).¹

Limitations of the review's overall analysis included combining studies with varied epidural regimens and labor management protocols. Not all trials stated whether epidural anesthesia was continued during the second stage of labor. In addition, only data from the late stage of labor (ie, 4 cm to full dilation) were included in the analysis.

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Is uterine artery embolization (UAE) safe and effective for treatment of uterine fibroids?

Evidence-Based Answer

Compared with hysterectomy or myomectomy, UAE for treating fibroids results in similar patient satisfaction. UAE is associated with fewer blood transfusions, shorter hospital stays, and quicker resumption of normal activities than surgical treatment. However, patients undergoing UAE are more likely to require further intervention at 2 and 5 years and are more likely to have minor complications than patients treated surgically (SOR: **A**, systematic review of RCTs).

A 2012 Cochrane review analyzed 6 RCTs including 732 patients with uterine fibroids that compared outcomes after UAE or surgical therapies for symptomatic uterine fibroids.¹ There was no significant difference between surgery and UAE at 1–2 years for patient satisfaction (5 trials; N=516; OR 0.69; 95% CI, 0.40–1.2). There was also no difference in satisfaction at 5 years (2 trials; N=295; OR 0.90; 95% CI, 0.45–1.8). There was no difference in live births after UAE compared with myomectomy procedures (one trial; N=66; OR 0.33; 95% CI, 0.11–1.0), but there were only 26 women who attempted to conceive after UAE and 40 women after myomectomy.

UAE procedural complications were not significantly different from surgery for major intraprocedural complications (5 trials; N=512; OR 1.01; 95% CI, 0.52–1.95), complications at one month (one trial; N=121; OR 1.4; 95% CI, 0.55–3.5), one year (6 trials; N=671; OR 0.54; 95% CI, 0.29–1.0), or 5 years (1 trial; N=144; OR 0.71; 95% CI, 0.32–1.6). UAE, however, was associated with significantly more minor complications at one year (5 trials; N=512; OR 2.1; 95% CI, 1.4–3.2) and 5 years (one trial; N=144; OR 2.6; 95% CI, 1.3–5.2) when compared with the surgical procedures. UAE patients were less likely to require blood transfusion when compared with any surgical procedure (3 trials; N=337; OR 0.06; 95% CI, 0.01–0.34). Women undergoing UAE were more likely to require further intervention at 2 years (5 trials; N=608; OR 5.1; 95% CI, 2.8–9.2) and at 5 years (2 trials; N=289; OR 5.8; 95% CI, 2.7–13) than women who had had surgery. Women who underwent UAE also had a higher rate of unscheduled visits or readmissions within 4–6 weeks (3 trials; N=338; OR

1. Anim-Somuah M, et al. *Cochrane Database Syst Rev*. 2011; (12):CD000331. [LOE 1a]

2.5; 95% CI, 1.4–4.4). Women who chose UAE had shorter procedures than either hysterectomy (one trial; N=156; mean difference [MD] –16 minutes; 95% CI, –26 to –6.8) or myomectomy (one trial; N=121; MD –50 minutes; 95% CI, –59 to –41), and resumed normal activities earlier (one trial; N=96; MD –26 days; 95% CI, –32 to –20). UAE was associated with shorter hospitalizations when compared with hysterectomy by 2.2 days (one trial; N=57; 95% CI, 1.6–2.8) to 4.1 days (one trial; N=57; 95% CI, 2.9–5.4). There was no statistical difference between surgery and UAE as far as ovarian failure (2 trials; N=297; OR 1.0; 95% CI, 0.53–1.9) or recurrence of fibroids (one trial; N=120; OR 1.3; 95% CI, 0.38–4.6).¹

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1. Gupta JK, et al. *Cochrane Database Syst Rev.* 2012; (5):CD005073. [LOE 1a]

What is the approach to intermenstrual bleeding in a woman taking a combined oral contraceptive?

Evidence-Based Answer

Causes of bleeding not related to combined oral contraceptive (COC) pill use should be considered first (SOR: **C**, expert opinion). If the bleeding is directly related to the COC, changing to a COC that contains >20 mcg ethinyl estradiol (EE) or a newer generation progestin may cause less intermenstrual bleeding. Altering the phasic formulation of progestin or changing between continuous and cyclic COC does not improve intermenstrual bleeding (SOR: **B**, systematic review with heterogeneous RCTs).

Intermenstrual bleeding is defined as bleeding between periods and is common in the first 3 to 4 cycles of COC use. A narrative review recommends that other causes of bleeding should be considered before changing the COC (**TABLE 1**).¹

A 2011 Cochrane review analyzed 21 RCTs (with about 10,000 women) comparing COCs containing ≤20 mcg ethinyl estradiol (EE) with those with >20 mcg EE.² COCs containing ≤20 mcg EE had higher rates of irregular bleeding (one trial; N=778; OR 1.6; 95% CI,

TABLE 1

Causes of intermenstrual bleeding in a woman on oral contraceptives not related to pill type¹

Missed pill
Tobacco use
Pregnancy-related issues, including ectopic pregnancy
Infection – cervicitis, endometritis, and specifically chlamydia, gonorrhea, trichomonas
Cervical abnormalities – polyp, dysplasia, carcinoma
Endometrial abnormalities – polyp, hyperplasia, carcinoma; leiomyomas
Metabolic abnormalities – thyroid, prolactin, liver or renal failure, coagulation defects

1.1–2.2) and discontinuation due to abnormal bleeding (one trial; N=1,000; OR 2.6; 95% CI, 1.5–5.0). This review involved multiple progestin types and the data did not allow statistical comparison among them.

Another 2011 Cochrane review evaluated 30 RCTs including nearly 14,000 women using a COC with 30 mcg EE to compare different generations of progestin (**TABLE 2**) and intermenstrual bleeding.³ Women using a second-generation monophasic progestin were less likely to stop their COC due to cycle disturbances compared with a monophasic first-generation progestin (one trial; N=875; RR 0.69; 95% CI, 0.52–0.91) or a triphasic first-generation preparation (3 trials; N=581; RR 0.61; 95% CI, 0.43–0.85). Based on one double-blind RCT with unclear randomization of 456 women receiving a monophasic preparation over 6 cycles, women using gestodene (third generation) reported less bleeding than those using levonorgestrel (second generation) (RR 0.71; 95% CI, 0.55–0.91; NNT=8).

A 2006 Cochrane review evaluated the effect of phasic formulation of progestin on intermenstrual bleeding.⁴ Only one trial of limited quality compared

TABLE 2

Classification of progestins used in combined oral contraceptive pills³

First generation	Third generation
• Norethindrone acetate	• Desogestrel
• Ethynodiol diacetate	• Gestodene
• Lynestrenol	• Norgestimate
• Norethynodrel	Unclassified
Second generation	• Drospirenone
• dl-Norgestrel	• Cyproterone acetate
• Levonorgestrel	