CATEGORY: USEFUL GUIDANCE

Uterine artery embolisation for the treatment of uterine fibroids

Objective: To provide advice on the

1. Summary of recommendations

Recommendation 1	Grade
Due to the lack of good quality evidence, caution should be employed to avoid routine use of UAE in young patients with fibroid disease wishing to conceive.	Consensus-based recommendation

Recommendation 2	Grade
Patients should be counselled about the possibility of a malignancy especially if there are rirl (.)]TJ0 refhŏw -esn 6.025.7s ref5.(ab)-4.4sial3.2(fQ87(l9(y7(Tw -)at cs.)]TJ	

2. Introduction and Definition

Fibroids are a common gynaecological condition which can result in problems including heavy menstrual bleeding, anaemia, pain and bulk symptoms. Uterine artery embolisation (UAE) has been reported as an effective and safe method of minimally invasive, uterine-sparing, treatment of symptomatic fibroids.

Uterine artery embolisation (UAE) involves the placement of an angiographic catheter into the uterine arteries via the common femoral artery, followed by injection of embolic particles until the flow becomes sluggish in both uterine arteries.[7] This treatment aims to reduce uterine blood flow at the arteriolar levels, producing ischemic injury to the fibroids, causing necrosis and shrinkage, whilst allowing the surrounding normal myometrium to recover under supply of vaginal and ovarian collateral circulations. There is no strong evidence of any one embolic particle being superior to another in terms of outcomes.[8]

3. Discussion and Recommendations

3.1 Comparison to other treatment options

UAE is intended to produce structural change within a fibroid and carries risks of similar complications to those seen at surgery. As such, it should be compared to surgical interventions such as myomectomy (in women wishing to conserve their uterus) or hysterectomy[9], not medical treatments for symptom control (eg. IUD containing levonorgestrel).

A 2014 Cochrane review [10] looked at the benefits and risks of UAE versus surgical interventions (myomectomy & hysterectomy) for symptomatic fibroids. This review found:

- No significant difference in patient satisfaction at both 2 years and 5 years
- Similar intra-procedural complications
- No difference in short- or long-term major complications
- UAE had a significantly reduced
    - Length of procedure
    - Length of hospitalisation
    - Time to resumption of normal activities
- UAE had an increased
    - Rate of short- and long-term minor complications
    - Number of unplanned reviews and re-admissions after discharge (OR

Minor complications occur with a rate of about 30-45%; major (life-threatening, potentially associated with permanent sequelae or requiring surgical intervention) complications about 5%.[10]

A 2013 meta-analysis reviewed the complications of UAE relative to surgery for symptomatic fibroids and noted no significant differences in major and minor complications between the groups.[13] The authors express caution in interpreting these results due to the small numbers in the trials and the potential for complication rates being related to operator experience. There is also heterogeneity between studies in the classification of complications, some of which may be considered under either group, depending on severity.

Clinical trials revealed the most common complications associated with UAE to be

- Discharge and fever – 4%
- Bilateral UAE failure (4%)
- Postembolisation failure (2.86%)

A rare, though concerning, complication is VTE (0.286%).

Amongst over 120 randomised control studies, non-randomised studies and case reports involving over 11,000 UAE patients, there have been 5 published case reports of deaths following embolisation (secondary to non-target embolisation, VTE and sepsis), though none since 2009.[14-18]

Delayed diagnosis of an endometrial sarcoma or uterine leiomyosarcoma has been reported.

3.3 UAE and reproductive potential

UAE remains controversial in women desiring pregnancy. Some authors favour UAE only for women who no longer desire childbearing [19,20] whereas others have a more permissive approach for childbearing women, offering UAE in case myomectomy is not a desirable option, either because of surgical risk, patient refusal or failure of previous surgery. [21]

The concerning outcomes that could affect reproductive potential include non-targeted embolisation leading to ovarian embolisation and impaired ovarian reserve [22], decrease in endometrial volume due to an inadequate blood supply [23] and an otherwise healthy myometrium adversely affected by embolisation leading to contraction disturbance and implantation failure. [24]

3.3.1 – Ovarian Reserve

A retrospective study of ovarian reserve in women undergoing UAE for symptomatic fibroids [25] noted a significant reduction in AMH and AFC in women 3 months after UAE. Women under the age of 40 showed a partial recovery of AMH by 12 months, but women over 40 did not. It should be noted that this study used temporary embolic agents for UAE, whereas most reports are of permanent embolic agents.

3.3.2 – Fertility rates

The recent Cochrane review [10] revealed only one RCT comparing fertility outcomes in women with fibroids randomised to UAE or myomectomy. [26] Pregnancy rates were significantly higher, with lower miscarriage rates, in the myomectomy group versus the UAE group. Obstetric and perinatal outcomes in ongoing pregnancies were

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Recommendation 2	Grade
Patients should be counselled about the possibility of a malignancy especially if there are risk factors such as a rapidly enlarging fibroid[1], postmenopausal women[2], racial group[3], previous radiation to the pelvis[4] or retinoblastoma gene mutation carrier[5]. There should also be an increased index of suspicion in continued growth of a fibroid after UAE.	C References 1-5
Recommendation 3	**Grade**
Patients should be counselled about the possibility of requiring subsequent hysteroscopic or laparoscopic retrieval of intracavity or subserosal pendunculated fibroids post-UAE.[6] Alternatively, elective surgical management of such lesions may be preferred.	C Reference 6

3.5 Patient preparation

Gynaecologists should counsel the patient about the available options and if the patient wishes to consider UAE, referral should be made to an experienced vascular interventional radiologist. The patient should receive a clear description of the outcomes of UAE in comparison with the alternatives, as well as a full discussion of the complications and re-intervention rates. Patients who desire, or may desire, future pregnancy should be advised that the effects of UAE on fertility and pregnancy are uncertain, and should only proceed after a fully-informed discussion.[6]

Prior to embolisation there should be an established plan for the responsibilities of both radiologist and gynaecologist for subsequent review and management of any complications.[6]

Good Practice Point	Grade
Patients considering UAE should be provided detailed counseling about the procedure, and alternative options, to facilitate informed decision-making.	Consensus-based
Recommendation 4	**Grade**
Patients who desire (or may desire) pregnancy should be advised that the effects of UAE on fertility and pregnancy are uncertain.[6]	Consensus-based Recommendation Reference 6

Therapy/Center for Innovative Minimally Invasive Therapy, 11th International Conference; September 16-18, 1999; Boston

16. Vashisht A, Studd J, Carey A, Burn P. Fatal septicaemia after fibroid embolization. Lancet. 1999;354:307-8

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18. Anonymous. Fatal nontarget embolization via an intrafibroid arterial venous fistula during uterine fibroid embiolization. J Vasc Interv Radiol. 2009:20(3):419-20

19. Myers ER. Uterine artery embolization: what more do we need to know?, Obstet Gynecol. 2002;100(5 Pt 1):847-8.

20. Torre A, Paillusson B, Fain V, Labauge P, Pelage JP, Fauconnier A. Uterine artery embolization for severe symptomatic fibroids: effects on fertility and symptoms, Hum Reprod. 2014;29(3):490-501.

21. Hovsepian DM, Siskin GP, Bonn J, Cardella JF, Clark TW, Lampmann LE, et al. Quality improvement guidelines for uterine artery embolization for symptomatic leiomyomata, J Vasc Interv Radiol. 2009;20(7 Suppl):S193-9.

22. Tulandi T, Sammour A, Valenti D, Child TJ, Seti L, Tan SL. Ovarian reserve after uterine artery embolization for leiomyomata, Fertil Steril. 2002;78(1):197-8.

23. Tropeano G, Litwicka K, Di Stasi C, Romano D, Mancuso S. Permanent amenorrhea associate

5. Links to other College statements

Fibroids in Infertility (C-Gyn 27)
https://www.ranzcog.edu.au/RANZCOG_SITE/media/RANZCOG-MEDIA/Women%27s%20Health/Statement%20and%20guidelines/Clinical%20-%20Gynaecology/Fibroids-in-Infertility-(C-Gyn-27)-Review-November-2014.pdf?ext=.pdf

Consent and the Provision of Information to Patients in Australia regarding Proposed Treatment (C-Gen 02a) https://www.ranzcog.edu.au/RANZCOG_SITE/media/RANZCOG-MEDIA/Women%27s%20Health/Statement%20and%20guidelines/Clinical%20-%20General/Consent-and-provision-of-information-to-patients-in-Australia-(C-Gen-2a)-Review-July-2016.pdf?ext=.pdf

Consent and Provision of Information to Patients in New Zealand regarding Proposed Treatment (C-Gen 02b) https://www.ranzcog.edu.au/RANZCOG_SITE/media/RANZCOG-MEDIA/Women%27s%20Health/Statement%20and%20guidelines/Clinical%20-%20General/Consent-and-provision-of-information-NZ-(C-Gen-2b)-Review-March-2016.pdf?ext=.pdf

Evidence-based Medicine, Obstetrics and Gynaecology (C-Gen 15)
https://www.ranzcog.edu.au/RANZCOG_SITE/media/RANZCOG-MEDIA/Women%27s%20Health/Statement%20and%20guidelines/Clinical%20-%20General/Evidence-based-medicine,-Obstetrics-and-Gynaecology-(C-Gen-15)-Review-March-2016.pdf?ext=.pdf

6. Patient information

A range of other RANZCOG Patient Information Pamphlets can be ordered via:

https://www.ranzcog.edu.au/Womens-Health/Patient-Information-Guides/Patient-Information-Pamphlets

Appendices

Each recommendation in this College statement is given an overall grade as per the table below, based on the National Health and Medical Research Council (NHMRC) Levels of Evidence and Grades of Recommendations for Developers of Guidelines.[15] Where no robust evidence was available but there was sufficient consensus within the Women's Health Committee, consensus-based recommendations were developed or existing ones updated and are identifiable as such. Consensus-based recommendations were agreed to by the entire committee. Good Practice Notes are highlighted throughout and provide practical guidance to facilitate implementation. These were also developed through consensus of the entire committee.

Recommendation category	Description category

Appendix C Full Disclaimer

This information is intended to provide general advice to practitioners, and should not be relied on as a substitute for proper assessment with respect to the particular circumstances of each case and the needs of any patient.

This information has been prepared having regard to general circumstances. It is the responsibility of each practitioner to have regard to the particular circumstances of each case. Clinical management should be responsive to the needs of the individual patient and the particular circumstances of each case.

This information has been prepared having regard to the information available at the time of its preparation, and each practitioner should have regard to relevant information, research or material which may have been published or become available subsequently.

Whilst the College endeavours to ensure that information is accurate and current at the time of preparation, it takes no responsibility for matters arising from changed circumstances or information or material that may have become subsequently available.