New surgical options in the management of menometrorrhagia: an overview

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Indications for endometrial ablation

- Dysfunctional uterine bleeding
- Failed traditional therapies (e.g. medical, dilatation and curettage)
- Contraindications to traditional therapies
- Poor surgical skills for anesthesia, hysteroscopic endometrial ablation, hysterectomy
- To preserve the uterus

Contraindications for endometrial ablation

- Genital tract malignancy (cervical, uterine, tubal, ovarian)
- Unresolved endometrial hyperplasia
- Women with anatomical or pathological uterine anomalies
- Women with history of previous classical caesarean section or transmural myomectomy
- Intra-uterine pregnancy
- Acute genital and/or urinary tract infection
- Women wishing to preserve their fertility
- Women expecting amenorrhoea as an outcome
- Women with an intra-uterine contraceptive device in place
- Failed previous endometrial ablation

Menometrorrhagia - Endometrial Ablation: 1st or 2nd generation?

First generation

- Video

Second generation

- Video

Menometrorrhagia - Endometrial Ablation: 1st or 2nd generation?

First generation

- Hysteroscopic vision
- Energy:
  - Monopolar energy
  - Bipolar energy
- General or locoregional anesthesia

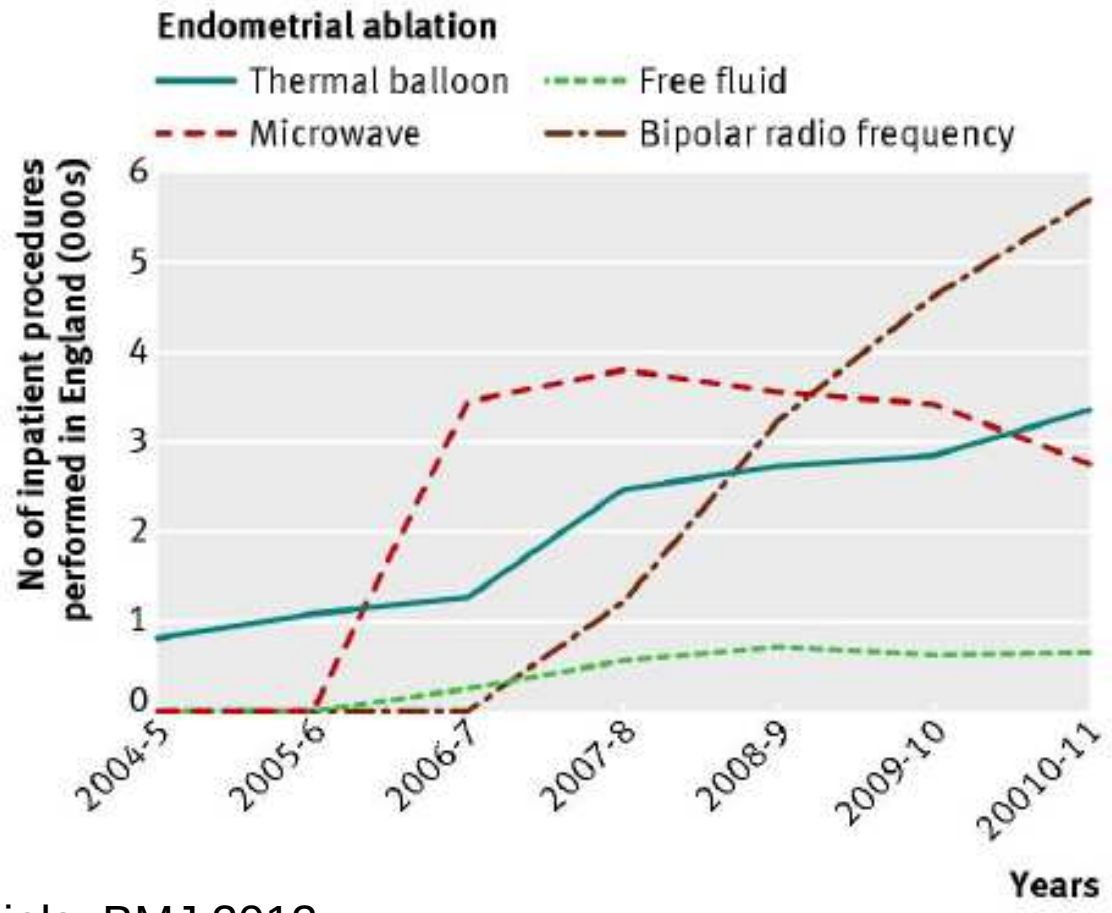
Second generation

- Blind technique
- Several energies
- Without general anesthesia

2nd generation endometrial ablation techniques

- Techniques
- Comparative studies
- Results
- Complications
- Cost effectiveness

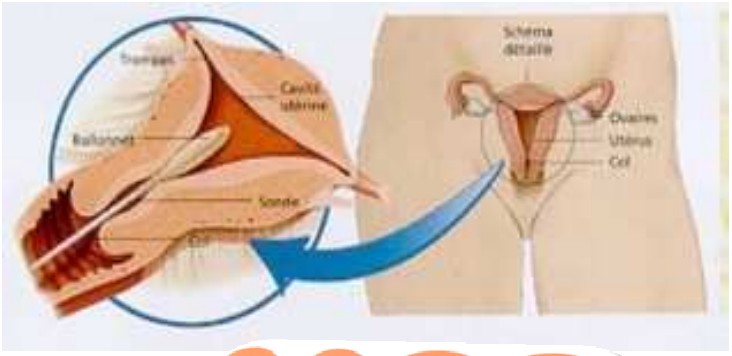
Techniques



Daniels, BMJ 2012

2nd generation Endometrial Ablation

- Thermal Balloon (TBA)



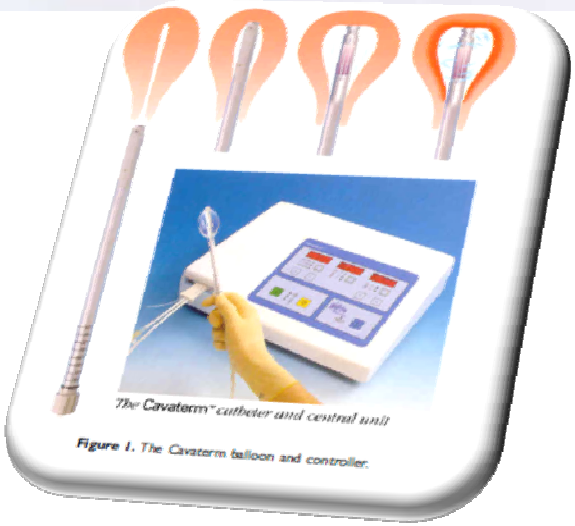


Figure 1. The Cavaterm balloon and controller.

Insertion of a silicone balloon into the uterine cavity.
Hot liquid circulates inside the balloon.
Control of pressure and temperature by the computer.
Duration: 2 to 10 minutes.

2nd generation Endometrial Ablation

- Thermal Balloon (TBA)
- Microwave (MEA)

- Insertion of a microwave probe into the uterine cavity to heat the endometrium
- Temperature is maintained at 75-80ºC
- The probe is moved from side to side to destroy the endometrium

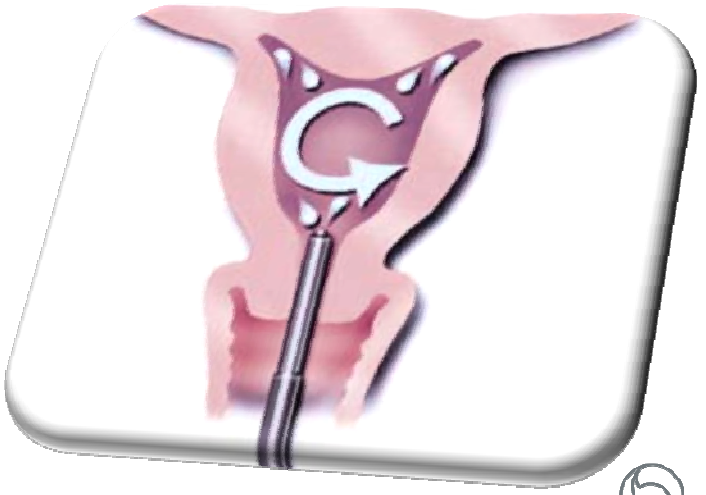
2nd generation Endometrial Ablation

- Thermal Balloon (TBA)
- Microwave (MEA)
- Radiofrequency electrosurgery (RFA)

•Impedance-controlled bipolar radiofrequency ablation
•A triangular mesh electrode is expanded to fill the uterine cavity
•The electrode delivers electrical current and destroys the endometrial lining
•Temperature 45℃
•Duration of the procedure: max 15 minutes

2nd generation Endometrial Ablation

- Thermal Balloon (TBA)
- Microwave (MEA)
- Radiofrequency electrosurgery (RFA)
- Hydrothermal ablation (HTA)
  - Temperature: 90℃/194℉
  - Duration: 10 minutes



2nd generation Endometrial Ablation

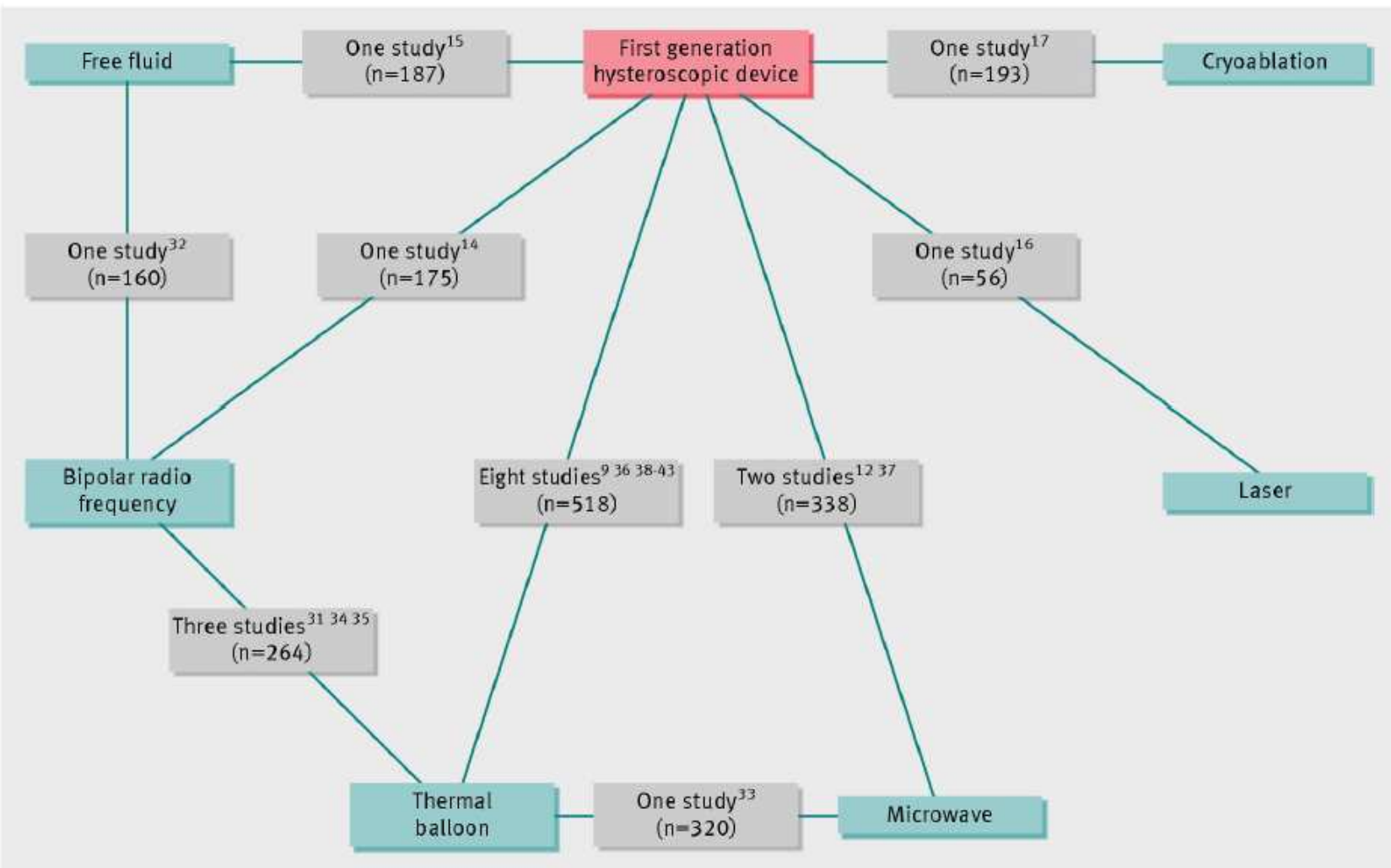
- Thermal Balloon (TBA)
- Microwave (MEA)
- Radiofrequency electrosurgery (RFA)
- Hydrothermal ablation (HTA)
- Cryoablation

A slender single-use probe is inserted into the uterus.

From the tip of the probe subzero temperatures are applied symmetrically to the uterine lining

Duration: 20 to 30 minutes

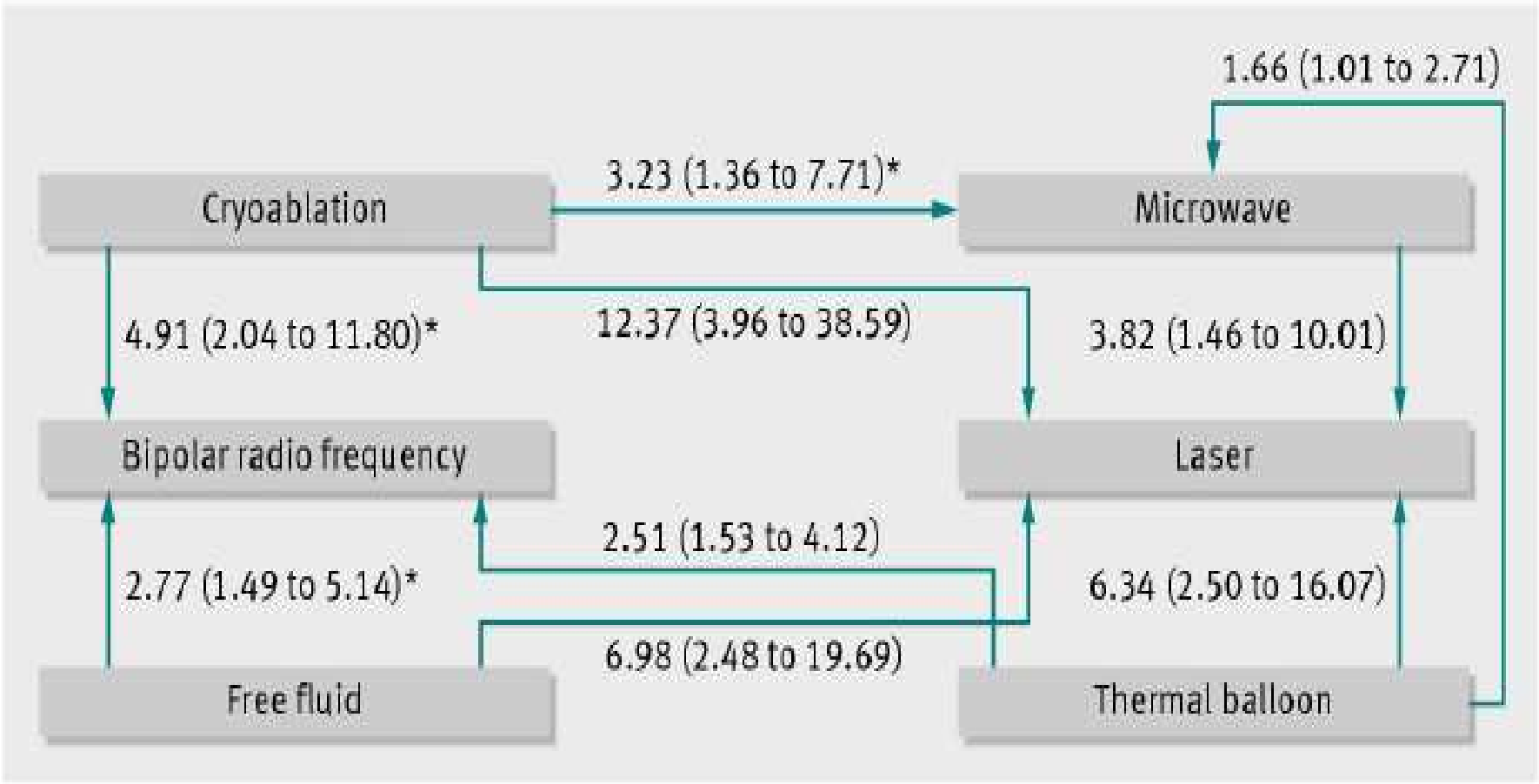
Network of studies evaluating 2nd generation endometrial destruction devices for treatment of heavy menstrual bleeding



Daniels, BMJ 2012

Pierre Fabre

Amenorrhea rate at 12 months



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HTA

Outcomes in patients who underwent office endometrial ablation using the HTA system according to myoma status

Variable	Patients With Myomas		Patients Without Myomas		p Value[a]
	No. (%)	95% CI	No. (%)	95% CI	
Outcome					
Amenorrhea	37 (38.9)	29.1–48.8	84 (61.8)	53.6–69.9	<.001
Oligomenorrhea	27 (28.4)	19.4–37.5	35 (25.7)	18.4–33.1	
Eumenorrhea	9 (9.5)	3.6–15.4	12 (8.8)	4.1–13.6	
Menorrhagia	11 (11.6)	5.1–18.0	4 (2.9)	0.1–5.8	
Hysterectomy because of bleeding	11 (11.6)	5.1–18.0)	1	0.7 (0–2.2)	
Total	95 (100)		136 (100)		
					RR (95% CI)
Menorrhagia or hysterectomy because of bleeding	22 (23.2)	14.7–31.6	5 (3.7)	0.1–6.8	6.3 (2.5–16.0)
Hysterectomy because of bleeding	11 (11.6)	5.1–18.0	1 (0.7)	0–2.2	15.7 (2.1–119.9)

CI = confidence interval; HTA = HydroThermAblator (Boston Scientific Corp, Natick, Massachusetts) RR = relative risk.
[a] χ^2 test.

Glasser et al, 2009

TBA and RFA

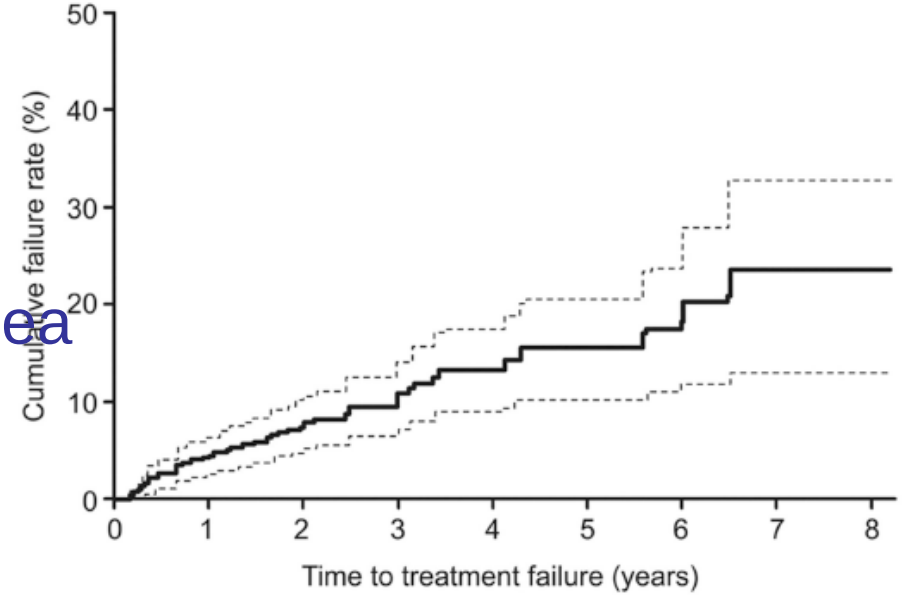
- Results: 23% amenorrhea
- Predictor of amenorrhea:
  - Age ≥45 years
  - Uterine length <9 cm
  - Endometrial thickness <4 mm
- RFA > TBA
- 5-year cumulative failure rate:16%

El Nashar et al Obstet Gynecol 2009

Cumulative failure rate

Predictors of treatment failure

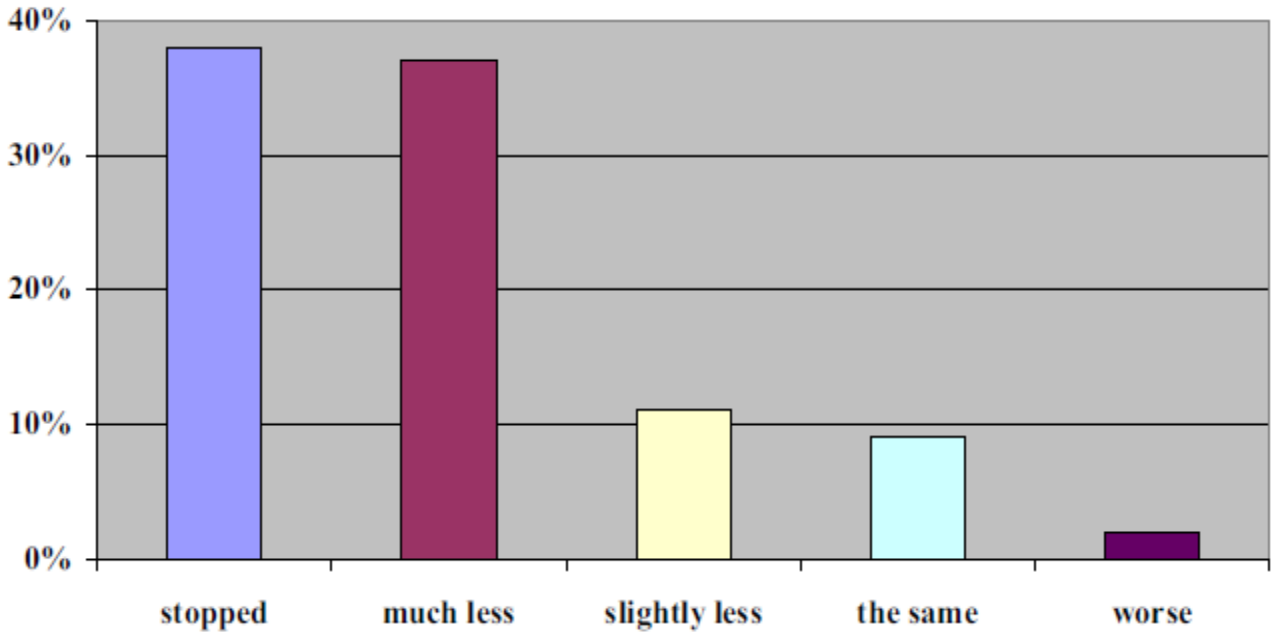
- Age <45 years
- Parity ≥5
- Prior tubal ligation
- History of dysmenorrhea



El Nashar et al Obstet Gynecol 2009

TBA

- Retrospective cohort study after TBA for menorraghia
- Follow up: 8 years
- Amenorrhea rate: 38% and substantial decrease in bleeding in 37%



Kopeika et al, Am J Obstet Gynecol 2011

Complications

- Perforation of the uterus
- Minor secondary haemorrhage
- Burning of the vagina, cervix and small bowel
- Serious complications occurring with an incidence of less than 1%

Recommendations

- In cases of suspected uterine displacement, clinicians should verify the correct placement using ultrasound before the device is activated

- As well as the use of ultrasound for all devices, the use of hysteroscopy prior to the insertion of the ablation device is recommended if the device is not a balloon. This enables a check to be made that sounding and dilation of the cervix has not caused a perforation or false passage

Cost-effectiveness: MEA vs TBA

- MEA is likely to be more cost-effective than TBA at 1 year
- The mean cost of TBALL (10 years equipment life, 100 uses annually) of reusable equipment was £181 (95% confidence interval [CI] £70-434) greater than MEA
- No statistically significant differences between the total nonhealth costs and health benefits of the two arms
- On average, MEA provided more Quality-adjusted life-years (QALYs)
- MEA was, on average, dominant (less costly and at least as effective) and there was over a 90% chance that MEA would be considered cost-effective at a £20,000 threshold of cost per QALY

Kilonzo, Value Health 2010

Conclusions

- Technically easier
- Success rate and complication profiles compare favourably with TRE
- Less complication with 2nd generation procedure for TEA
  - Fluid overload
  - Uterine perforation
  - Cervical laceration
  - Hematometra
- More side effects: nausea, vomiting, uterine cramping
- Less effective than hysterectomy in stopping bleeding but is not invasive
- Hysterectomy is associated with a higher risk for pelvic floor repair and surgery for SUI

Lethaby, Cochrane Data Base 2005
Cooper et al, BJOG 2011

Therapeutic options for Heavy Menstrual Bleeding