1.Management of Abnormal Uterine Bleeding

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Introduction

The aim of this Guideline is to provide recommendations to aid General Practitioners and Gynaecologists in the management of **Abnormal Uterine Bleeding (AUB).** This treatment could be initiated in a primary care setting or in centres with advanced facilities. The objective of treatment in AUB is to alleviate heavy menstrual flow to make a diagnosis, treat and consequently to improve quality of life. Iron deficiency anaemia must also be prevented.

1.1 Scope of the guideline

Abnormal Uterine Bleeding (AUB) is a common but complicated clinical presentation. One national study found that menstrual disorders were the reason for 19.1 percent of 20.1 million visits to physician's offices for gynaecological conditions over a two-year period. Furthermore, a reported 25 percent of gynaecological surgeries involve abnormal uterine bleeding [1].

The normal menstrual cycle lasts 28 ± 7 days, the flow lasts 4 ± 2 days, and the average blood loss is 40 ± 20 ml/cycle. It may or may not accompany dysmenorrhoea.

1.1.1 Definitions

Abnormal Uterine Bleeding (AUB) is defined as changes in frequency of menses, duration of flow or amount of blood loss. Abnormal Uterine Bleeding (AUB) is a diagnosis of exclusion when there is no pelvic pathology or underlying medical cause. DUB is typically characterized by heavy prolonged flow with or without breakthrough bleeding. It may occur with or without ovulation.

Except for self-limited, physiologic withdrawal bleeding that occurs in some newborns, vaginal bleeding

before menarche can be abnormal. In women of childbearing age, abnormal uterine bleeding includes any change in menstrual-period frequency or duration, or amount of flow, as well as bleeding between cycles. In postmenopausal women, abnormal uterine bleeding includes vaginal bleeding six months or more after the cessation of menses, or unpredictable bleeding in postmenopausal women who have been receiving hormone therapy for 12 months or more.

Menorrhagia (hypermenorrhoea) is defined as heavy cyclical menstrual bleeding occurring over several consecutive cycles during the reproductive years. Objectively, menorrhagia is defined as blood loss of more than 80 mls. per cycle. Monthly blood loss in excess of □0 mls. may result in iron deficiency anemia and may affect the quality of life .[3]

1.2 Differential diagnosis

Genital tract pathologies

- Infections: cervicitis, endometritis, myometritis, salpingitis
- Neoplastic entities
  - Benign anatomic abnormalities: polyps of the cervix or endometrium, adenomyosis, leiomyomata,
  - Pre-malignant lesions: severe cervical dysplasia causing early invasion, endometrial hyperplasia,
  - Malignant lesions: cervical carcinoma, leiomyosarcoma and oestrogen-producing ovarian tumors.

Systemic conditions

- Adrenal hyperplasia and Cushing's disease,
- Blood dyscrasias including leukaemia and thrombocytopenia,
- Coagulopathies – Von Willibrand disease,
- Hepatic disease,
- Hypothalamic suppression (from stress, weight loss, weight gain, excessive exercise, polycystic ovarian disease (PCOD),
- Pituitary adenoma or hyper-prolactinemia may lead to cycle disturbances before developing amenorrhoea,
- Polycystic ovary syndrome,
- Renal disease,
- Thyroid disease.

Trauma

- Foreign body, pessary,Intra Uterine Contraceptive Device (IUCD), injuries, sexual abuse or assault,

Medication and iatrogenic causes

- Anticoagulants,
- Antipsychotics,
- Corticosteroids,
- Hormone replacement therapy,
- Intrauterine devices,
- Oral contraceptive pills, Depot provera including progestin-only pills,
- Selective serotonin re-uptake inhibitors,
- Tamoxifen (Nolvadex),
- Thyroid hormone replacement,

Abnormal Uterine Bleeding (AUB) is a diagnosis made by a careful process of exclusion which need history, clinical and speculum examination, ultrasound scanning, hysteroscopy/ endometrial biopsy and laparoscopy.

1.3 Assessment

1.3.1 Abnormal Uterine Bleeding in Teenage Girls

1.3.1.1 Possible Causes

Immediately after menarche maturation of the hypothalamic-pituitary-ovarian axis is yet to be completed. Anovulatory dysfunctional uterine bleeding may therefore occur and results in irregular, prolonged, and sometimes heavy menstrual bleeding.

All adolescents with menorrhagia severe enough to require hospitalization or significantly reduced hemoglobin levels (<10 g/dl) should undergo evaluation for coagulopathy. **(Grade X)**

Disorders of both platelet number and function may cause menorrhagia. Von Willebrand's disease, a defect in platelet adhesion and a deficiency of factor VIII, is the

most common bleeding disorder affecting about 1% of the population. Diseases causing thrombocytopenia include idiopathic thrombocytopenic purpura, leukaemia, and aplastic anemia. In adolescents, the prevalence of a primary coagulation disorder requiring hospitalization for abnormal uterine bleeding ranges from 3% to 20%. Malignancy, trauma, and sexual abuse or assaults and pregnancy related problems are other potential causes of abnormal uterine bleeding after menarche.

1.3.1.2 Diagnosis

Careful physical examination should be carried out in order to detect an underlying pathology. **(Grade X)**

A pelvic examination should be performed in married adolescents preferably under anesthesia **(The necessity to obtain permission and clearly explain the consequences of such examination, details of surgical procedure necessary and the sequelae is stressed in the case of unmarried adolescents.)** **(Grade X)**

A reported 54% of cases involve focal lesions of the genital tract, and 21 percent of these lesions may be malignant. [5]

Investigations should be done based on the findings from history and examination. If a coagulopathy is suspected a full blood count with platelet count should be obtained. **(Grade X)**

Ultrasound scan will help to diagnose poly-cystic ovarian disease (PCOD), ovarian neoplasms, endometrial or cervical lesions. **(Grade Y)**

1.3.1.3 Management

Endometrial cancer is rare in 15 to 18 years old females.

Most adolescents with dysfunctional uterine bleeding can be treated safely with hormone therapy and observation, without invasive diagnostic testing but ultra sound scan will be very helpful.

- Nor-ethisterone 5mg. administered orally twice a day from 5th day of each menstrual cycle for 21 days for 3- cycles, and the patient monitored closely thereafter,
- Tranexamic acid 500mg. twice a day for 3 days,
- Oral contraceptive pills (20µg oestrogen containing pill-Femilon)

(Grade Y)

Dilatation and curettage is not indicated but conditions such as Sarcoma botroides should be thought of. **(Grade Z)**

1.3.2. Abnormal Uterine Bleeding in Women of Childbearing Age

1.3.2.1

- Pregnancy complications should be the first consideration in women of childbearing age who present with abnormal uterine bleeding[7]. Potential causes of pregnancy-related bleeding include spontaneous miscarriage, ectopic pregnancy and trophoblastic disease. Patients should be inquired about cycle patterns, contraception, and sexual exposure. **(Grade X)**
- Next, iatrogenic causes of abnormal uterine bleeding should be explored. **(Grade X)**

Bleeding may be induced by medications including anticoagulants, selective serotonin reuptake inhibitors, antipsychotics, corticosteroids, hormonal medications and tamoxifen. Herbal substances including ginseng, ginkgo, and soy supplements may cause menstrual irregularities by altering estrogen levels or clotting parameters.

- Once pregnancy and iatrogenic causes have been excluded, patients should be evaluated for systemic

disorders; particularly thyroid, haematologic, hepatic, adrenal, pituitary, and hypothalamic conditions.

(Grade X)

Menstrual irregularities are associated with both hypothyroidism (23.4% of cases) and hyperthyroidism (21.5% of cases).[8]

- Inherited coagulopathy has been shown to be the underlying cause of abnormal uterine bleeding in 18 percent of white women and 7 percent of black women with menorrhagia[9].
- The presence of galactorrhoea as determined by the history or physical examination, may ' indicate underlying hyperprolactinemia, which can cause oligo-ovulation or eventual amenorrhoea. Hypothalamic suppression secondary to eating disorders, stress or excessive exercise may induce anovulation, which sometimes manifests as irregular and heavy menstrual bleeding or amenorrhoea.
- Genital tract pathology may be associated with inter-menstrual, post-coital, and heavy menstrual bleeding. Any history of abnormal Pappanicolaou (Pap) smears, sexually transmitted disease, gynaecological surgery, trauma, or sexual abuse should be elicited. Uterine fibroids, endometrial polyps, adenomyosis, endometrial hyperplasia and atypia and endometrial cancer should be excluded. (which is rare) **(Grade X)**
- Further evaluation of abnormal uterine bleeding depends on the patient's age and the presence of risk factors for endometrial cancer, which include anovulatory cycles, obesity, nulliparity, age greater than 35 years, and tamoxifen therapy.
- Initially, medical management is recommended for pre-menopausal women who are at low risk for endometrial carcinoma with the presumptive

diagnosis of abnormal uterine bleeding.

1.3.2.2 Diagnosis

The evaluation of women who are in child bearing age who present with abnormal uterine bleeding includes a pelvic examination if sexually active, as well as a Pap smear if appropriate, inspection of vulva and vagina detecting signs of trauma, and cervical polyps or dysplasia [10].

(Grade X)

Check for:

- Complete normality of ectocervix,
- Contact bleeding and cervical tenderness,
- Friability of tissue, ulceration or cervical polyp,
- Other possible sites of bleeding,
- Signs of vaginal discharge, foreign body or IUCD tail.

A bimanual examination in women in the childbearing age may reveal tenderness associated with infection, an adnexal mass consistent with an ovarian neoplasm or cyst, or uterine enlargement consistent with fibroids, pregnancy, or a tumour.

Obesity, acne, hirsutism, and acanthosis nigricans may be signs of poly-cystic ovarian disease (PCOD).

Transvaginal ultrasonography may reveal leiomyoma, endometrial thickening, and polyps. Although this imaging modality may miss endometrial polyps and submucous fibroids, it is highly sensitive for the detection of endometrial cancer (9□%) and endometrial abnormality (92 %)[(11)]. Compared with dilatation and curettage, endometrial evaluation with transvaginal ultrasonography misses 4% or more cancers, but it may be the most cost-effective initial test in women at low risk for endometrial cancer who have abnormal uterine bleeding which does not respond to medical management.[4] Saline-infusion sonohysterography is more accurate than transvaginal ultrasonography in diagnosing intra-cavitary lesions. The

combination of hysteroscopically directed endometrial biopsy and saline-infusion sonohysterography result in a sensitivity of 95 to 97% and a specificity of 70 to 98% for the identification of endometrial abnormality [12]. **(Grade Y)**

1.3.2.3 Management

Dilatation and curettage is no longer considered to be therapeutic or diagnostic for abnormal uterine bleeding; furthermore, it is limited in its ability to access the tubal cornu of the uterus [1].

A complete blood count with platelet count should be obtained if a coagulation defect is suspected or to assess the degree of anaemia. **(Grade X)**

Jaundice and hepatomegaly may suggest underlying acquired coagulopathy and liver function tests should be considered. Other tests to be considered are thyroid profile and prolactin levels. **(Grade Y)**

1.3.3 Abnormal Uterine Bleeding in Peri-Menopausal Women

Without exception, perimenopausal women with abnormal uterine bleeding should undergo endometrial evaluation. Until malignancy has been ruled out, it should be considered as the cause. **(Grade X)**

About 20% to 25% of cases of endometrial carcinoma occur before the menopause, especially in women with PCOD.

Anovulatory dysfunctional uterine bleeding is a disturbance of the hypothalamic-pituitary ovarian axis that results in irregular, prolonged, and sometimes heavy menstrual bleeding. It may occur during perimenopause,

when declining estrogen levels fail to regularly stimulate the LH surge and resulting ovulation.

1.3.3.1 Diagnosis

Conduct abdominal examination, speculum examination (with a good light) and bimanual pelvic examination. **(Grade X)**

Check:

- complete normality of ectocervix,
- contact bleeding and cervical tenderness,
- friability of tissue, ulceration or cervical polyp,
- other possible sites of bleeding,
- signs of vaginal discharge, foreign body or IUCD tail,
- do Pap smear when bleeding settles.

Endometrial assessment is performed to diagnose malignancy or pre-malignant conditions and to evaluate the hormonal influences of the endometrium.

Ultrasound scan, particularly the transvaginal route, is used to assess endometrial thickness, endometrial and myometrial consistency and abnormalities of endometrial morphology like submucosal fibroid or polyp etc. **(Grade Y)**

Most of the studies however were on the endometrial thickness of postmenopausal women. According to Smith Bindman et al, the average endometrial thickness for normal postmenopausal women was 4 mm, those with endometrial polyp 10 mm, those with endometrial hyperplasia 14 mm and endometrial carcinoma 20 mm [14]. The prediction of endometrial pathology based on ultrasound scan in premenopausal women is not reliable because of great overlap between normal range and those with endometrial pathology.

Sampling of the endometrium should be considered in all women over 40 years of age with

abnormal bleeding or in women who are at higher risk of endometrial cancer, including: nulliparity with a history of infertility; new onset of heavy, irregular bleeding; obesity (≥ 90 kg); polycystic ovaries; a family history of endometrial and colonic cancer; and those who are on tamoxifen therapy. **(Grade X)**

It is also important to evaluate the endometrial histopathology in a woman who has no improvement in her bleeding pattern following a course of therapy of three months with nor-ethisterone 5mg. three times a day for 21 days.

Office endometrial biopsy results in adequate samples 87 to 97% of the time and detects □7 to 9□% of endometrial carcinomas[13]. Although the choice of sampling device may affect accuracy, no existing method will sample the entire endometrium. Hysteroscopically-directed sampling detects a higher percentage of abnormalities when compared directly with dilatation and curettage (D&C) as a diagnostic procedure. Even if the uterine cavity appears normal at hysteroscopy, the endometrium should be sampled since hysteroscopy alone is not sufficient to exclude endometrial hyperplasia and carcinoma. **(Grade X)**

In 10 to 25% of women D&C alone does not uncover endometrial pathology. D&C was associated with uterine perforation in 0.□ to 1.3 percent of cases and hemorrhage in 0.4 % of cases [13]. D&C is a blind procedure with significant sampling errors; it also requires anaesthesia, which carries a risk of complications. It should be reserved for those situations where office biopsy or directed hysteroscopic biopsy are not available or feasible.

1.3.4 Abnormal Uterine Bleeding in Post-Menopausal Women

Post-menopausal bleeding (PMB) represents one of the most common reasons for referral to gynaecological services, largely due to suspicion of an underline endometrial malignancy. Endometrial cancer is present in approximately 10% of patients referred with PMB.

The menopause is defined by the World Health Organization as the permanent cessation of menstruation resulting from loss of ovarian follicular activity. From a symptomatic perspective PMB describes the occurrence of vaginal bleeding following a woman's last menstrual cycle. There is some debate regarding the minimum time period that should pass after the end of menstruation, before PMB can be considered to have taken place. Usually an episode of bleeding 12 months or more after the last period is accepted as post-menopausal bleeding.

Abnormal bleeding in women using hormone replacement therapy (HRT) can be difficult to assess. Abnormal uterine bleeding in post-menopausal women receiving HRT can be caused by any of the following;

- •Poor compliance, especially related to omission of progestogens,
- •Poor gastrointestinal absorption,
- •Drug interactions,
- •Coagulation defects,
- •Gynaecological disorders,
- •Occasional follicular development in menopause.

1.3.4.1 Diagnosis

Women presenting with PMB requires a pelvic examination during their assessment. This examination may also represent an opportunity to take a routine cervical

smear if this is due for women within the National Screening Programme. **(Grade X)**

The principal aim of the investigation of post-menopausal bleeding is to identify or exclude endometrial pathology, most notably endometrial carcinoma. It is also important to ensure that women are sufficiently reassured following normal tests.

Most evidence at present favor the use of transvaginal ultrasonography (TVUS) as the initial investigation in PMB. This is because there is both a much greater quantity and a higher quality of evidence supporting its use compared with other methods. **(Grade X)**

The mean endometrial thickness in post-menopausal women should be less than 4-5 mm. Thickening of the endometrium may indicate the presence of pathology. In general the thicker the endometrium the higher the likelihood of important pathology (endometrial cancer) being present. TVUS can reliably assess thickness and morphology of the endometrium and can thus identify a group of women with post-menopausal bleeding who have a thin endometrium and are therefore unlikely to have significant endometrial disease.

It is conventional to measure the double thickness measurement of both endometrial surfaces at the thickest point in the mid saggital view. Use of the endometrial thickness cut off assumes that the endometrial morphology is normal. Any abnormal features, e.g.: suspicion of a polyp, would require further investigation irrespective of the endometrial thickness. If the endometrial thickness is less than 4mm and she is still bleeding, still try to exclude a cause.

A recent meta analysis reviewed four studies and all assessed the 5mm threshold and, when pooled showed that a negative TVUS result of 5mm or less reduced the risk of disease by 84%. Whether it is sufficient to rule out disease

depends on the pre test risk of disease in the relevant patient group.

According to the most recent meta analysis, using an endometrial thickness of over 3mm to define an abnormal result would represent a sensitive approach [4].

Based upon a pre test probability of cancer of 10%, the post-test probability following a negative test result is 0.4%. Unfortunately the evidence base for a 3mm threshold is less reliable and prone to bias than that for the 5mm threshold. Therefore, measured by TVUS, an endometrial thickness of 3mm or less gives an approximate post test probability of cancer of 0.□% to 0.8% in the following groups of women.

i. Post menopausal women who have never been on HRT.
ii. Postmenopausal women who have not been on any form of HRT for a year or more.
iii. Post menopausal women on continuous combined HRT.

If the clinician and the woman judged that the level of reassurance and reduced risk are acceptable following a TVUS measurement of 3mm or less, no further action need to be taken. Further investigations should be carried out if symptoms recur. If the clinician, the patient or both are not satisfied with this level of reassurance, further investigation is justified. This should include an endometrial biopsy to obtain a histological assessment.

(Grade Y)

The mean endometrial thickness in women on sequential hormone replacement therapy with post-menopausal bleeding is greater than in those women with post-menopausal bleeding who are not on sequential HRT. Thus an abnormal endometrial thickness in women with post-menopausal bleeding who are not using HRT

represents a greater probability of endometrial disease than in women taking hormone replacement therapy.

Trans-abdominal ultra sound maybe used as a complementary examination if the uterus is significantly enlarged or a wider view of the pelvis or abdomen is required. **(Grade Y)**

A definitive diagnosis in post-menopausal bleeding is made by histology. Historically endometrial samples have been obtained by dilatation and curettage. But D & C should no longer be used as the first line method of investigating post-menopausal bleeding in most cases.

Endometrial biopsy can be undertaken using endometrial samplers. There are a variety of different endometrial samplers available but there are no systematic comparison between them. All methods of sampling the endometrium will miss some cancers. **(Grade Y)**

Hysteroscopically guided endometrial sampling can be performed in these women. Re-investigation of recurrent post-menopausal bleeding should be considered after □ months. **(Grade Z)**

	All women with post menopausal bleeding			
HRT status	▼ Current or recent (within last year) use of sequential HRT		▼ Never used HRT or not used HRT for over 1 year or using continues combined HRT	
Estimated pre-test risk of cancer	1- 1.5 %		10 %	
Endometrial thickness test result	≤5 mm ▼	≥5 mm ▼	≤ 3 mm ▼	≥ 3 mm ▼
Probability of cancer after test	0.1 – 0.2 % ▼	2 – 5 % ▼	0.□ – 0.8 % ▼	>20 – 22% ▼
Action required	No further investigation	Investigation for tissue sampling	No further investigation	Investigation for tissue sampling

1.4 Treatment of Abnormal Uterine Bleeding

1.4.1 Medical Management

Age, desire to preserve fertility, coexisting medical conditions, and patient preference are essential considerations. For each of the suggested methods, the patient should be aware of the risks and contraindications, to allow informed choice. The degree of patient satisfaction may be influenced by efficacy, expectations, cost, inconvenience, and side effects.

1.4.1.1 Non-Steroidal Anti-Inflammatory Drugs

- Endometrial prostaglandins are elevated in women with heavy menstrual bleeding. Non-steroidal anti-inflammatory drugs (NSAIDs) inhibit cyclo-oxygenase and reduce endometrial prostaglandin levels.
- In a review of 21 randomized controlled trials, NSAIDs taken with menses decrease menstrual blood loss by 20 to 50 %[(13)].
- NSAIDs improve dysmenorrhea in up to 70 % of patients. NSAIDs reduce menstrual bleeding when compared with placebo but are less effective than either tranexamic acid or danazol.
- Therapy should start at the first day of menses and be continued for five days or until cessation of menstruation.

1.4.1.2 Anti-fibrinolytic Agents

- Tranexamic acid (cyclokapron), a synthetic derivative of the amino acid lysine, exerts an antifibrinolytic effect through reversible blockade on plasminogen. The drug has no effect on blood coagulation parameters or dysmenorrhea.

- Antifibrinolytic therapy causes a greater reduction in objective measurements of heavy menstrual bleeding when compared to placebo or other medical therapies, (NSAIDs, oral luteal phase progestogens and ethamsylate). This treatment is not associated with an increase in side effects compared to placebo, NSAIDs, oral luteal phase progestagens or ethamsylate [15].
- Flooding, leakage and sex life is significantly improved after tranexamic acid therapy when compared with oral luteal progestogens but no other measures of quality of life were assessed. No study has used resource cost as an outcome.
- There are no data available within randomised controlled trials, which record the frequency of thromboembolic events.
- One third of women experience side effects, including nausea and leg cramps.
- Tranexamic acid 1 gm. every six hours for the first four days of the cycle reduces menstrual blood loss by up to 40 %, based on 10 randomized placebo-controlled trials.
- The main contraindications are thromboembolic disorders.

1.4.1.3 Danazol

- Danazol, a synthetic steroid with mild androgenic properties, inhibits steroidogenesis in the ovary and has a profound effect on endometrial tissue, reducing menstrual blood loss by up to 80 %.
- Following danazol therapy (100-200 mgs. daily), 20 % of patients reported amenorrhoea and 70 % reported oligomenorrhoea[13]. Approximately 50 % of the patients reported no side effects with danazol while 20 % reported minor but acceptable side effects. The most

common complaint was weight gain of two to six pounds in □0 % of patients.

- The recommended treatment is 100 to 200 mg. daily for three months.

1.4.1.4 Progestins

- Randomized controlled trials have shown cyclic progestins to be ineffective in controlling regular heavy menstrual bleeding compared to NSAIDs and tanexamic acid.
- Progestins may be useful for women with irregular cycles and with anovulatory cycles when given for 21 days of each month.
- Medroxyprogesterone acetate given for contraception induces amenorrhoea within the first year in 80 % of women, although as many as 50 % experience irregular bleeding[15].

1.4.1.5 Combined Oral Contraceptive Pill

- The reduction of menstrual blood loss with the combined oral contraceptive pill (OCP) is probably the result of induced endometrial atrophy. A randomized controlled trial of women taking an OC containing 30μg ethinyl estradiol showed a 43% reduction in menstrual blood loss compared to baseline.
- Two longitudinal case control studies have found that users were less likely to experience heavy menstrual bleeding or anemia.
- Additional advantages of OCPs include contraception and reduction of dysmenorrhoea.
- Now ethenyl estradiol 20μg containing pills are available in Sri Lanka (Femilon).

1.4.1.6 Progestin Intrauterine System

- Progesterone impregnated intrauterine devices (IUDs) have been reported to reduce menstrual bleeding. The newest levonorgestrel intrauterine system (LNG-IUS) is a T-shaped IUD, which releases a steady amount of levonorgestrel (20 μg/ 24 hrs) from a steroid reservoir around the vertical stem of the device.

1.4.1.7 GnRH Agonists

- GnRH agonists induce a reversible hypoestrogenic state, reducing total uterine volume by 40 to □0 %.
- Myomas and uterine volume expand to pre-treatment levels within months of cessation of therapy.
- GnRH agonists are effective in reducing menstrual blood loss in perimenopausal women, but are limited by their side effects, including hot flashes and reduction of bone density. Supportive therapies such as correction of anaemia, exclusion of thyroid disorders etc. are beneficial.

1.4.2 Surgical management

1.4.2.1 Dilatation and Curettage **(Grade X)**

- There are no published reports of randomized controlled trials comparing D&C and other potential treatments for the relief of menorrhagia. The only study to measure blood loss before and after D&C found temporary reduction in menstrual blood loss immediately after the procedure. However, losses returned to previous levels or higher by the second menstrual period post intervention.
- Still D&C is a method practiced in Sri Lanka to diagnose follicular phase of endometriam, secretory endometrium, anovlatory endometrium, endometrial hyperplasia with or without atypia, carcinoma of endometrium, chorio-carcinoma, endometrial polyps,

endometrial tuberculosis, myomatous polyps, endometritis and atrophic endometrium.

1.4.2.2 Endometrial Destruction (Grade Z)

- Endometrial destruction can be performed by several different surgical techniques: cryosurgery, laser ablation, resection, roller ball and heat destruction by balloon.
- Five randomized controlled trials have compared hysterectomy with endometrial ablation or resection.
- These trials showed that the advantages of the less invasive endometrial destruction compared with hysterectomy, especially in the short term, were: shorter operating time, fewer complications, faster rates of recovery, less need for analgesia and reduced cost.
- A newer technique involving a balloon which is inflated within the uterus and fluid heated (uterine balloon therapy) has been compared to roller ball therapy (endometrial ablation). The rate of amenorrhoea at □ months follow up between the two treatments was similar. The uterine balloon therapy takes 15 minutes but is not suitable if submucous fibroids exist.

1.4.2.3 Hysterectomy

- The risks of major surgery must be weighed against alternatives. Clinical practice guidelines for hysterectomy have been reported by Lefebvre et al. Hysterectomy is a permanent solution for the treatment of menorrhagia and abnormal uterine bleeding, and is associated with high levels of patient satisfaction in properly selected patients. **(Grade X)**

- For the woman who has completed her childbearing, reviewed the alternatives, and has tried conservative therapy without acceptable results, hysterectomy is often the best choice. **(Grade X)**

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