Hysterectomy for benign gynaecological disease

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KEYWORDS
Total hysterectomy; Subtotal abdominal hysterectomy; Bladder function; Sexual function; Bowel function; Complications; Quality of life; Vaginal hysterectomy; Alternatives to hysterectomy

Summary
Hysterectomy, the commonest major gynaecological operation, is the only definitive cure for dysfunctional uterine bleeding, rates highest in satisfaction scores compared with other treatments, and improves quality of life. Although research indicates that vaginal hysterectomy is safer and cheaper than total abdominal hysterectomy, the latter still accounts for 60–80\% of all hysterectomies in the UK and the USA, and at least 95\% of these are total rather than subtotal. Although recent research also shows that subtotal hysterectomy confers no advantages over the total procedure, with respect to pelvic organ function, subtotal hysterectomy is the quicker and safer operation, and the risk of cervical stump carcinoma in a woman who has previously had normal smears is negligible. Overall mortality rates from hysterectomy are 0.5–2 per 1000, and rates of visceral damage are 0.5–2\%. Complications are most common in women treated for uterine fibroids, and overall rates decrease with increasing age of women. Cost-effective analysis shows hysterectomy to be an effective and cost-effective intervention across a variety of indications. Conservative alternatives to hysterectomy, including endometrial ablative techniques, the Mirena intrauterine system (IUS), and uterine artery embolization for fibroids, have not yet greatly reduced hysterectomy rates, which vary widely between regions, and within the same geographical area. A major challenge is to establish the reasons for this variation in rates.

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Introduction

Hysterectomy is the most common major gynaecological operation in both the UK and the US. In both countries the vast majority are performed via the abdominal route, and for benign indications, fibroid disease being the commonest indication (in more than 60\% of cases). Hysterectomy rates highest in satisfaction scores compared with other modalities of treatment for dysfunctional uterine bleeding. However, few operations raise more passions than hysterectomy. Current topics of debate and controversy include the best approach to performing the operation; the widely varying rates of hysterectomy; the impact of hysterectomy on quality of life; whether hysterectomy adversely affects pelvic organ function including bladder, bowel and sexual; and whether newer more conservative treatments (medical therapies, endometrial ablative techniques, Mirena IUS and uterine artery embolization) could replace hysterectomy. Resolutions to most of these controversies can only come from robust and
rigorous randomized controlled trials, which currently are largely lacking. These issues are addressed in this chapter, including the complication rates from hysterectomy, and the health economics of the operation.

**Approaches to hysterectomy: Vaginal versus abdominal versus laparoscopic**

In contemporary gynaecological practice in the UK and the USA, 60–80% of all hysterectomies are performed by the abdominal route, and over 95% are total. Most, if not all, recent research suggests that vaginal hysterectomy is safer and cheaper than abdominal hysterectomy. The reasons for the dominance of the abdominal route are probably in part historical, as in the first part of the 20th century, before gynaecology developed as a separate specialty, most hysterectomies were performed by general surgeons who, not being familiar with vaginal surgery, preferred the abdominal route. Today, it is probably true to say that the average gynaecologist will perform a vaginal hysterectomy only in the presence of prolapse—a result of habit and upbringing that flies in the face of the research evidence. The first complete laparoscopic hysterectomy was performed by the American gynaecologist Harry Reich in 1988, and since then laparoscopic-assisted vaginal hysterectomy has gained in popularity. However, it is now generally recognized that laparoscopic hysterectomy is time-consuming, expensive and associated with a higher incidence of complications compared with either conventional abdominal or vaginal hysterectomy, even in expert hands. Moreover, many gynaecologists now accept that many of the non-prolapse hysterectomies can in fact be performed vaginally without the need of a laparoscope.

**Abdominal hysterectomy: total versus subtotal**

Whereas the early abdominal hysterectomies were all subtotal, improvements in surgical techniques, the advent of better anaesthesia, antibiotics and blood transfusion before and after the second world war all encouraged surgeons to almost always perform the total procedure, to the point where performing subtotal hysterectomy is often regarded as a sign of surgical inexperience. The clinical argument against subtotal hysterectomy was the 1% chance of developing cancer in the cervical stump, and 5% incidence of persistent blood-stained discharge from residual endometrium. Indeed in the UK subtotal hysterectomy currently accounts for less than 5% of the abdominal hysterectomies. In the 1980s initial reports from the Scandinavian countries suggested that retaining the cervix enhanced the female sexual response and protected against bladder and bowel dysfunction, and this stimulated a resurgence of the subtotal hysterectomy. Subsequent more robust research has not corroborated the earlier reports of the advantages of retaining the cervix in terms of pelvic organ function (see below). However, gynaecologists need to re-examine their attitudes to subtotal hysterectomy. It is quicker and safer, and with dramatically falling rates of invasive cervical cancer and the imminent introduction of vaccines against the human papilloma virus, the risk of cervical stump carcinoma should now be negligible, at present in women whose smears have always been normal, and in the future in women who have been immunized. Gynaecologists currently practice in an era of rampant litigation—ureteric or bladder injury can rarely ever be successfully defended in court! Subtotal hysterectomy should therefore no longer be scoffed at, and where the laparoscopic procedure (laparoscopic supra-cervical hysterectomy) is feasible, this should arguably be the operation of choice over the total procedure.

**The varying hysterectomy rates**

There are widely varying hysterectomy rates among regions, with a six-fold difference amongst the developed countries with comparable resources and as much as a five-fold variation within the same geographical area and among gynaecologists at the same hospital. Twenty percent of women in the UK and 37% in the US have had a hysterectomy by the age of 60 years. Thus in the US a woman’s lifetime risk of hysterectomy is 25%, which compares to a much lower risk of 10.4% in Denmark. In England and Wales the hysterectomy rate in NHS hospitals is estimated at 28 per 10,000 women per annum. There is no reason to suppose that women in different countries have differing incidence of menorrhagia or gynaecological pathologies. Then why do hysterectomy rates vary so much? There is scant research to answer this important question. The high efficacy of hysterectomy might in part explain its continued popularity. Pharmacological treatments may control, but do not cure the problem, and may be limited by side effects, variations in patient compliance, and the need for long-term therapy. Controlled trials comparing hysterectomy with endometrial ablative techniques have consistently shown that hysterectomy is more effective in permanently curing abnormal uterine bleeding and results in higher patient satisfaction scores. There is no obvious explanation for the regional variation, and speculation includes gynaecologists’ attitudes and experience, patient education and awareness, and availability of safe and effective non-hysterectomy options.

**Quality of life and psychological sequelae of hysterectomy**

As the vast majority of hysterectomies are performed for benign indications, the fundamental aim is not to save lives, but to improve quality of life. Thus in clinical research quality of life is an important outcome variable in the evaluation of any treatment modality, and its measurement prospectively and concurrently complements morbidity and mortality measures. As psychiatric symptoms can arise as a result of physical illness, or might influence the manifestation and/or outcome of treatment of that illness, it is also highly informative to measure the psychological sequelae of clinical interventions. Indeed it has been argued that the functional impact of a clinical intervention should be the definitive arbiter of treatment success, and measurement of quality of life has been recommended for outcome assessment of treatments for menorrhagia.

Recent research presents compelling evidence that hysterectomy improves quality of life. Research that has compared abdominal or vaginal hysterectomy to endometrial ablative techniques has found consistently higher
quality of life scores for hysterectomy. It is reasonable to suppose that women feel better because they no longer suffer the symptoms that led to the hysterectomy in the first place. There has been an ongoing debate in the literature whether new problems follow the operation. However, research has not detected any difference in any of the dimensions of quality of life between hysterectomized and non-hysterectomized women. Hysterectomy has traditionally been considered to be associated with adverse psychiatric sequelae. However, the earlier studies often lacked conceptual clarity and had methodological flaws, many being retrospective analyses with inadequate measures of outcome. In recent years more robust instruments have been employed to study psychological outcome following clinical interventions. Thus more recent studies on the psychological sequelae of hysterectomy, using the GHQ or equivalent tools, have arrived at entirely different conclusions. In general, recent research indicates that women with preoperative depression are at increased risk for depression after surgery, but in general, hysterectomy decreases psychological symptoms. There is no evidence to suggest that either women awaiting hysterectomy or those who have had one suffer any greater psychological disturbance than other women. The consensus from most research evidence therefore suggests that hysterectomy improves quality of life and psychological measures.

Does hysterectomy adversely affect pelvic organ function?

It is not unreasonable, from an anatomical consideration, to suppose that hysterectomy could adversely affect pelvic organ function, including bladder, bowel and sexual function. The operation alters the relative anatomical spatial relationships among the pelvic organs, and disrupts their innervation. The pelvic plexus, which is of paramount importance in the coordinated contractions of the smooth muscle of the bladder and bowel, is formed by the junction of the pelvic parasympathetic and sympathetic nerves. This plexus is intimately related to the bladder, cervix and vagina and the nerve supply of the pelvic organs is derived from it. During the operation of total hysterectomy, the pelvic plexus may be at risk in four areas. First, the main branches of the plexus passing beneath the uterine arteries may be damaged during the division of the cardinal ligaments. Second, the major part of the vesical innervation, which enters the bladder base before spreading throughout the detrusor muscle, may be damaged during blunt dissection of the bladder from the uterus and cervix. Third the extensive dissection of the paravaginal tissue may disrupt the pelvic neurons passing from the lateral aspect of the vagina. Finally, the removal of the cervix will result in loss of a large segment of the plexus which is intimately related to it. The remaining portion of the plexus may be inadequate to deal with afferent impulse from the rectum and the bladder, leading possibly to bladder and rectal dysfunction. It is therefore conceivable that damage to this autonomic innervation during pelvic surgery may result in functional disorders of the pelvic viscera, and indeed it has been suggested that constipation following hysterectomy may be caused by autonomic denervation of the hindgut. Similarly, sympathetic damage produces loss of proximal urethral pressure and parasympathetic damage could cause detrusor areflexia.

But the above are theoretical considerations; what does the research say? The study of sexual function is highly complex, as both physical and psychological factors influence human sexuality in a way that is both varying and difficult to quantify. In the human psyche the uterus is often imbued in all kinds of myths, historically being regarded as the regulator and controller of important physiological functions, a sexual organ, a source of energy and vitality, and a maintainer of youth and attractiveness. It should not surprise that the removal of such an organ might be expected to alter women’s perception of self, especially with regard to femininity, attractiveness, sexual desire and ability to respond sexually. Psychological studies suggest that post-hysterectomy sexual function is influenced by a wide range of patient characteristics. For example, poor knowledge of reproductive anatomy, pre-hysterectomy negative expectation of sexual recovery following surgery, preoperative psychiatric morbidity and unsatisfactory preoperative sexual relations are all associated with poor outcome. Pre-hysterectomy factors that are associated with positive post-surgery sexuality include frequency of coitus, frequency of desire, and orgasmic response. In other words those women who retained an overall desire for sexual activity, and were presumably hampered by negative physical symptoms, might be expected to experience an improvement in their sexual function following hysterectomy.

Reports from Finland discussing the advantage of subtotal over total abdominal hysterectomy brought into sharp focus interest in the influence of anatomical changes. Disturbance of the innervation of the cervix and the upper vagina after total hysterectomy could interfere with lubrication and orgasm. An internal orgasm is essentially a cervical orgasm, caused by stimulation of nerve endings in the uterovaginal plexus, which intimately surround the cervix and attach to the upper vagina. Since much of the sensory and autonomic information from the pelvic organs including the uterus, is channelled through the uterovaginal plexus, it is conceivable that loss of a major portion of the uterovaginal plexus through excision of the cervix might have an adverse effect on sexual arousal and orgasm in women who previously experienced internal orgasm. Women who achieve orgasm through clitoral stimulation might not be affected, while those who had experienced both types of orgasm or in whom sexual response was blended might notice a decrease in sexual response following hysterectomy. Other factors contributing to sexual problems might be reduction in cervical mucous and vaginal shortening, although recent work does not corroborate these findings. While a few studies have suggested that hysterectomy has a negative impact on sexuality, the vast majority of more recent and better-designed prospective studies report that, in fact, abdominal total hysterectomy does not impair sexual function. Therefore the current general consensus is that hysterectomy does not adversely affect sexual function. Some studies go further to suggest that hysterectomy may actually improve sexual function—this makes teleologic sense if the presence of pathology hampers sexual function, and hysterectomy removes the pathology.
What of hysterectomy and bladder and bowel function? Hysterectomy involves dissection of the bladder from the uterus, the process being more extensive for a total than a subtotal hysterectomy. Bladder innervation may therefore be altered, but previous studies have yielded conflicting results. Some of the previous studies showed an increased risk of urinary incontinence with sub-total abdominal hysterectomy being superior to total. Other authors have reported no more urinary symptoms after hysterectomy than dilatation and curettage or trans-cervical resection of endometrium.

Women often date the onset of bowel symptoms to previous gynaecologic surgery. However, bowel dysfunction is common among women with gynaecologic symptoms, even in the absence of surgery. Most studies of the effect of hysterectomy on bowel function have been retrospective, with small numbers of women and a lack of adequate controls, while some have not even defined the type or route of the hysterectomy. A retrospective case–control study comparing hysterectomized women with controls showed that the former were more likely to report infrequent defaecation and firmer stool consistency. However, women following extensive bowel operation and irritable bowel syndrome were excluded from matched controls but not from the hysterectomy group. A prospective study designed to determine the incidence of symptoms suggestive of irritable bowel syndrome arising after hysterectomy concluded that hysterectomy had little if any effect on the de novo development of irritable bowel syndrome. A recent large, multi-centre, double-blind trial in which total hysterectomy was compared with the subtotal procedure addressed the issue of bladder and bowel function and found that neither procedure adversely affected these organs.

So why does hysterectomy not adversely affect pelvic organ function?

At the beginning of the preceding section, an argument based on anatomical considerations was made as to how hysterectomy could adversely affect pelvic organ function, yet all the recent robust research has indicated that neither bowel, bladder nor sexual function are adversely affected! The consistently high satisfaction rates reported in association with simple hysterectomy suggest that major post-operative morbidity in terms of pelvic organ dysfunction is not a common occurrence after total or subtotal hysterectomy. Recent research provides a rational and plausible anatomical explanation as to why simple hysterectomy might not adversely affect pelvic organ function. It has been shown that the nerve content of the uterosacral ligaments and cardinal ligaments differ along their length, with a significantly greater nerve content in the middle to lateral thirds towards their origin at the pelvic side wall, compared with the medial third toward the insertion of these ligaments into the uterine body and cervix. During simple hysterectomy, the ligaments, and therefore the nerves within them, are divided very close to the uterus and cervix. Thus only the nerves innervating the uterus and cervix are interrupted, while those innervating the surrounding structures including the bladder and rectum remain intact. In contrast, radical hysterectomy, in which the ligaments are divided more laterally, has been associated with greater disturbance of pelvic organ function. This is also consistent with the observation that laparoscopic uterine nerve ablation for endometriosis and dysmenorrhoea does not adversely affect bladder function. Finally, the removal of pathology (endometriomas, myomas, pelvic adhesions, adenomyosis) which itself might be a cause of pelvic organ dysfunction (e.g. dyspareunia) could be more significant than minor anatomical disruption.

Complications and recovery rates following hysterectomy

With total abdominal hysterectomy, much of the operative time, cost and morbidity are associated with the removal of the cervix. There can be no argument that, compared with total, vaginal or laparoscopic hysterectomy, subtotal abdominal hysterectomy is a safer operation, whatever the skill of the surgeon. There is less or no mobilization of the bladder, and minimal, if any, risk to the ureters. In both the UK and the USA, injury to the urinary tract, estimated as occurring in 0.5–3% cases, is the biggest cause of litigation following hysterectomy. If surgical outcome in terms of cure rates and patient satisfaction is similar between subtotal and the other types of hysterectomy, there may be strong argument for adopting the safer procedure. Additional advantages of subtotal hysterectomy are that haematomas and wound infections are reported to be less common. The higher incidence of the latter associated with total abdominal hysterectomy is often attributed to contamination of the abdominal cavity by vaginal flora during the procedure. Vault granulations do not complicate subtotal hysterectomy, but they occur in 21% of women after total hysterectomy, even if polygalactide sutures are used, and they often cause symptoms. Some studies also suggest that subtotal hysterectomy is associated with more rapid recovery and a shorter hospital stay. But there are potential disadvantages with subtotal hysterectomy too. The incidence of cyclical bleeding after subtotal hysterectomy has been variably reported, and many women would be disappointed to find that they continue to menstruate after having undergone major surgery to eradicate menses. Even small amounts of residual endometrial tissue could result in abnormal bleeding, and complicate the use of hormone replacement therapy. Finally, there is uncertainty on the issue of vaginal vault versus cervical stump prolapse following abdominal hysterectomy. Although theoretically subtotal hysterectomy could decrease the incidence of post-hysterectomy prolapse of the vaginal vault by preserving connective tissue support of the upper vagina, earlier studies reported cervical prolapse following subtotal hysterectomy, and careful long-term follow-up studies are required to resolve this issue.

Overall mortality rates for hysterectomy range from 0.5–2 per 1000. The rates of visceral damage are reported at 0.5–2.0%. Recent research appears to indicate that the most common operative complications have a reduced incidence with increasing age (except for laparoscopic surgery), but it is increased by parity and the highest risks occur among women following extensive bowel operation and irritable bowel syndrome. A recent large, multi-centre, double-blind trial in which total hysterectomy was compared with the subtotal procedure addressed the issue of bladder and bowel function and found that neither procedure adversely affected these organs.
women treated for fibroids. Thus younger women with more vascular pelvises having vaginal surgery are at greater risk than older women, who usually have a vaginal hysterectomy as part of a pelvic floor repair. The overall risk for vaginal hysterectomy decreases with age, and is lower than for abdominal surgery after age 50. Laparoscopic methods show a doubling of risk compared with vaginal or abdominal surgery. Of serious post-operative complications the strongest predictor is a history of operative complications, but after adjusting for this, highest risks are among women treated for fibroids. Laparoscopic and vaginal methods are associated with higher adjusted risks than abdominal methods.

What are the alternative medical and surgical options to hysterectomy?

The preceding sections describe hysterectomy as a highly effective treatment modality, but it is a major operation that causes discomfort and considerable disability in the weeks following surgery, has mortality rates in the range 0.38–1 per 1000, severe complications occurring in 3% and minor morbidity in 30% of women. It may be associated with urinary incontinence and early ovarian failure, and has considerable cost implications. These issues, and the contemporary view that hysterectomy rates may be too high, have spurred the continued search for effective alternatives to hysterectomy. But any such alternatives must provide at least comparable quality of life and satisfaction rates seen in association with hysterectomy, must be cost-effective with better side-effect and complication rates. The range of alternatives includes the levonorgestrel-releasing intrauterine system (LNG-IUS), a wide range of endometrial ablative techniques, and—where fibroids are the primary pathology—myomectomy and uterine artery embolization.

The LNG-IUS is effective in reducing menstrual blood loss, exerting its clinical effect by preventing endometrial proliferation and reducing both duration and amount of blood loss, and is well accepted by most women. Early research suggests that satisfaction with treatment, and health-related quality of life and psychosocial well-being are similar between hysterectomy and the LNG-IUS, but the latter has the advantage of reduced cost. Nevertheless caution must be exercised in interpreting results as many women who fail on LNG-IUS end up having a hysterectomy. The treatment of menorrhagia with endometrial ablation is based on the concept that destruction of the basal layer of the endometrium leads to amenorrhoea. Endometrial ablation by the first or second-generation methods can be an effective treatment for menorrhagia, and studies show high satisfaction rates. These techniques have a shorter operating time and hospital stay, quicker recovery and fewer postoperative complications than hysterectomy. Ongoing contraception is essential for sexually active women, as pregnancy has occasionally occurred after endometrial ablation, with a high incidence of miscarriage and complications. Suffice to say here that while short-term follow-up studies might indicate an advantage for endometrial ablation, longer-term studies show a narrowing of the gap, and hysterectomy appears to have consistently higher rates of satisfaction and better health-related quality of life outcomes.

Fibroids are the commonest tumour in women during the reproductive years, and are the most common indication for hysterectomy in the UK and USA. Although myomectomy and hysterectomy are the mainstay treatment modalities, there are uncertainties and controversies about optimal therapy and standard clinical outcome measures. Myomectomy results in an overall 80% resolution of menorrhagia symptoms. It is associated with increased blood loss, operating time, pain, postoperative morbidity and longer hospital stay than hysterectomy, while in 20–25% of women, an additional procedure (such as repeat myomectomy or hysterectomy) is necessary. The risk of recurrence of fibroids following myomectomy is 4–47% and up to 98% risk of adhesion formation has been reported. This explains why many a gynaecologist will offer a woman a hysterectomy rather than a myomectomy.

The advent of uterine artery embolization (UAE) was hailed by many as the ‘Holy Grail’ in the non-surgical management of fibroids, and initial reports are indeed encouraging. The published data suggest symptomatic improvement rates of 60–90%, fibroids shrinkage rates of up to 70%, and hysterectomy rates of 0–2%. Health-related quality of life studies have also shown significant improvements. It is probable that by now more than 250 000 UAE procedures have been performed worldwide, and to date, three deaths have been reported. This compares very favourably with the figure of one to two deaths per thousand hysterectomies. Serious infections (1–2%) following UAE also compare favourably with the estimated complication rates of up to 30% following hysterectomy. However, it should be emphasized that there has not been any prospective randomized trials comparing UAE with hysterectomy or myomectomy to obtain a more objective comparison of the long-term clinical outcomes.

Health economics of hysterectomy

Even in rich, highly developed countries, health budgets are limited and therefore effective utilization of available resources is essential. With annual hysterectomy rates of about 100,000 in the UK, 550,000 in the USA, some 60,000 in France, it is evident that hysterectomy is bound to have significant cost implications. So it is not enough to simply consider what a clinically effective intervention it is, the economic aspects also need to be addressed, not just for the procedure of hysterectomy itself, but on the basis of the different ways in which the hysterectomy can be performed, and also in relation to alternative treatment. Cost-effectiveness analysis (CEA) is a system that evaluates both costs and health outcomes in order to compare healthcare programmes. Healthcare funding agencies such as the NHS and NICE require that only direct health-related costs are included in that analysis. The outcome of CEA is sometimes expressed as cost-effectiveness ratio. In this ratio all costs (resources consumed less savings associated with the intervention) are included in the numerator and all health outcomes (benefits less harms) are included in the denominator. However, CEA is technically challenging and is often based on ill-founded and misleading assumptions.
It is beyond the scope of this chapter to delve into the intricacies of CEA. Suffice, therefore, to summarize the current received wisdom on CEA as it relates to hysterectomy.

Although expensive, all CEA of hysterectomy demonstrate a very cost-effective and clinically effective surgical intervention across a variety of indications. Most alternative therapies do not treat the underlying cause of any of the common benign gynaecological pathologies and repeat treatment is frequently required. Removing the uterus removes both the site of symptom production and the source of the pathology. When alternative treatments are compared with hysterectomy, it is clear that the longer the follow-up period, the more cost-effective hysterectomy appears. When a hysterectomy is indicated the vaginal route is the most cost-effective approach. The laparoscopic route has advantages in terms of speed of recovery and shortening of the convalescent intervals when compared with abdominal route. However, from an economic point of view it is to be preferred only when vaginal hysterectomy is not possible. There is little benefit from cost-effectiveness perspective to influence the decision about the concomitant removal of the cervix and almost no data yet to guide clinicians about the desirability of removing the ovaries at the time of hysterectomy.

Concluding remarks

Although alternatives to hysterectomy for benign gynaecological disease are now widely available, including the Mirena IUS, endometrial ablation, uterine artery embolization for fibroids, and pharmacologic approaches, hysterectomy is the only definitive cure for abnormal uterine bleeding, improving quality of life and rating highest in satisfaction scores compared with the other modalities of treatment for dysfunctional uterine bleeding. The vast majority (60–80%) of hysterectomies are performed via the abdominal route, despite robust research evidence that the vaginal approach is safer and more cost-effective. In an era where the emphasis is on the practice of evidence-based medicine, this is surprising and requires a paradigm shift in the attitudes of gynaecologists. There is robust evidence that subtotal hysterectomy confers no advantages over total hysterectomy with regard to sexual, bladder or bowel function, but it is the safer procedure, and at a time when the risk of cervical stump carcinoma is no longer an issue, and litigation looms large, gynaecologists should re-evaluate the place of subtotal hysterectomy, which currently account for less than 5% of all abdominal hysterectomies in the UK.

Hysterectomy has been a mainstay of gynaecologic therapy for over 100 years, and is likely to be so for the foreseeable future because it is highly efficacious. Questions that should be addressed include the issue of the widely and wildly varying hysterectomy rates; why gynaecologists persist in adopting the abdominal route when the vaginal route is clearly more advantageous; the true place of the conservative surgical approaches to the management of menorrhagia; and optimal approaches to the management of uterine fibroids.

Practice points

- Hysterectomy is the only definitive cure for dysfunctional uterine bleeding.
- Hysterectomy rates highest in satisfaction scores compared with other treatment modalities for dysfunctional uterine bleeding.
- Hysterectomy improves quality of life, and decreases adverse psychological sequelae.
- The vast majority of hysterectomies are performed by the abdominal route, despite indications that the vaginal route might be more advantageous.
- Uterine fibroids are the most common indication for hysterectomy.
- The long-standing debate on total versus subtotal hysterectomy has recently been resolved by a large trial showing no major advantage for one operation over the other. Some differences are that women who have subtotal hysterectomy recover quicker, but a small proportion may experience cyclical vaginal bleeding, and of course will still require smears.
- Overall mortality rates for hysterectomy are 0.5–2 per 1000, and rates of visceral damage are 0.5–2%. Complications are most common in women treated for uterine fibroids, and overall rates decrease with increasing age of women.
- Conservative alternatives to hysterectomy, including endometrial ablative techniques, the Mirena IUS, and uterine artery embolization for fibroids have not greatly reduced hysterectomy rates.
- Hysterectomy rates vary widely between regions, and even within the same geographical area. The reasons for this variation are largely unknown.

Research directions

- To establish the reasons underlying the widely varying rates of hysterectomy.
- Vaginal versus abdominal hysterectomy in women with no genital prolapse.
- Uterine artery embolization versus myomectomy in the treatment of symptomatic uterine fibroids.

Further reading