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Created Nov 30 2007 - 4:50pm



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For Healthcare Providers: Managing Menorrhagia Without Surgery

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When a woman comes to you saying that her periods are "heavy" she's "flooding" or she's passing clots, what do you normally do to assess and treat her? The purpose of this paper is to define normal menstruation and how to clinically assess menstrual flow. In addition, you will learn how to make a diagnosis of menorrhagia some practical medical ways in which you can manage menorrhagia.

What is the normal menstrual flow?

In a randomly selected group of premenopausal women, the median blood flow was about two tablespoons (30 ml) in a whole period ([1](#) [[1](#)]) ([2](#) [[2](#)]). However the range of menstrual blood loss is huge—from 0.1 ml to 540 ml! Women that are taller, have had children and are in perimenopause have the heaviest flow ([2](#) [[3](#)]). The usual length of menstrual bleeding is four to six days. The usual amount of blood loss is 10 to 35 ml.

How is Menorrhagia defined?

Officially, flow of more than 80 ml per menstrual period is considered menorrhagia. 80% of women bleeding this heavily will have one or more laboratory evidences of iron deficiency ([1](#) [[4](#)]). However, statistically, the maximum flow should be between 45 and 60 ml per cycle ([2](#) [[5](#)]).

What causes Menorrhagia?

This is not very clearly known. Menorrhagia is most common in adolescence and in perimenopause—both are times of the lifecycle in which estrogen exposure exceeds and is out of balance with progesterone. Most women with menorrhagia report regular periods and have been shown to have normal estrogen and progesterone levels. In a study using a dilatation and curettage surgery (D & C) for all women with heavy flow in Tasmania, the greatest prevalence (20%) was in women ages 40-44. None of those who were pre-

or perimenopausal had endometrial cancer (3 [6]). That suggests that a D & C is usually unnecessary. Another study with quantitative assessment of flow performed endometrial biopsies on all and showed a strong positive correlation between late luteal endometrial estrogen receptor numbers and measured blood loss ($r = 0.81$, $P < 0.01$) (4). This suggests that menorrhagia is related to increased estrogen *action* before flow.

In women ages 40 to 50, fibroids [7] are commonly associated with menorrhagia. However more estrogen action and less progesterone production cause fibroid growth as well as increased endometrial thickness. Fibroids are benign tumors that grow in the myometrium; less than 10% are submucous, even close to the endometrial surface and therefore might possibly influence to flow. Fibroids are rarely a reason for heavy flow and to treat menorrhagia differently.

In perimenopause, approximately 25% of women will have at least one episode of heavy flow—it usually occurs when cycles are regular and before the onset of skipped cycles. Perimenopause is a time of higher than normal estrogen levels and lower progesterone levels (5 [8];6 [9]). Other studies have shown that ovulation is less consistent or short luteal phase cycles are common in perimenopause (7 [10]).

Very rarely is menorrhagia caused by a primary bleeding disorder. In a highly selected population with menorrhagia that was carefully and repeatedly tested for clotting abnormalities only 17% were found to have any bleeding disorder (8 [11]). Only when a patient has responded poorly to usual therapies should investigations for a clotting defect be performed.

How can I assess vaginal blood loss based on history?

Taking a menstrual flow history is not easy. The studies by Hallberg and Cole referred to above had women collect all sanitary products during one or more cycles and then quantitatively analyzed them for blood. This is not practical for clinical practice. Also, some women may not normally pay attention to their flow. Or they may change sanitary products solely for cleanliness. And most women don't know what flow is normal. Remember that women may be frightened by heavy flow and passing clots—this may cause them to become quite dramatic. If a woman seems to be anxious and to exaggerate her flow but is normally matter-of-fact, don't discount her report.

Ask your patient to be specific in telling you about her flow—you need to know how many normal-sized pads and tampons she soaks on the first day, the heaviest day and a usual day of flow. Also you need to know how many days she bleeds. (This can be prospectively assessed if she will keep the Menstrual Cycle Diary [12] or Daily Perimenopause Diary [13] for a cycle or two.

Each soaked normal-sized pad or tampon holds approximately five millilitres of blood. To calculate the approximate amount of blood loss multiply the number of soaked normal-sized pads or tampons in a whole cycle by five to determine the millilitres of blood lost. A maxi-tampon or pad probably holds 10ml. Sixteen soaked normal-sized sanitary products used in one flow means a blood loss of 80 ml—your patient has menorrhagia. Normal flow is two to seven soaked sanitary products a period.

What laboratory tests will help assess heavy flow?

The first thing is to order a hemoglobin and hematocrit. If you get a history of ongoing heavy flow, or use of iron therapy then assessment of ferritin, or the storage form of iron, is also needed. Only if she reports a family history of a bleeding disorder or personal excess bleeding with surgery should tests of the coagulation system initially be ordered. If her period was late or she could be pregnant, do a pregnancy test—she could be having a miscarriage.

What can I do immediately if my patient calls telling me she is flowing heavily?

The first thing is to assess her amount of flow using her history of soaked sanitary products. Next you need to know whether or not she has postural symptoms (dizzy or palpitations with standing). Finally, reassure her that you and she will work together to solve the heavy bleeding problem.

If she describes heavy flow and especially if she has any postural symptoms, instruct her to drink several extra cups of salty fluids such as tomato or vegetable juices or bouillon type soups. Next tell her to take at least one tablet (200 mg) of ibuprofen every four to six hours. (If she is having dysmenorrhea then the ibuprofen, to be effective for cramps, must be taken frequently enough to stay ahead of them.) Non-steroidal anti-inflammatories decrease the amount of flow by 25-30% by altering the endometrial prostaglandin balance (9 [14]). Also have her start taking one tablet of iron a day. If her ferritin is low or if hemoglobin or hematocrit are low she should continue this for one year to replete her iron stores.

You will need to arrange for her to have an urgent assessment of her blood count and iron stores. You also need to examine her so do both in the same visit. You can measure blood pressure and pulse after she has been lying down and resting for five minutes and then after one and three minutes of quiet standing. Remember that the maximum pulse increase with standing is 20 beats a minute. That is the most likely abnormal finding in a young person with volume depletion.

It is a good time to do a pelvic. Infection is a rare cause for menorrhagia but requires urgent treatment of more than flow. A speculum exam will allow you to see the rare cervical or vaginal lesions that are a cause for heavy bleeding.

What medical ways can I treat menorrhagia?

Although the most commonly used first therapy for menorrhagia is an oral contraceptive, the evidence that they are effective is slight. That is especially true in perimenopause (10 [15]). Cyclic progestins have been used to treat menorrhagia but they have not been adequately tested in randomized controlled trials (11 [16]). However, a randomized trial of high-dose, longer-term cyclic norethisterone (5 mg TID cycle days 5 to 26) compared with a progestin-releasing IUD showed that flow was reduced by 87% (12). Despite lack of multiple trials, based on what is known of the natural history of menorrhagia, and that increasing progesterone exposure causes a decrease estrogen receptors, progesterone or progestin therapy are appropriate for the outpatient treatment of menorrhagia.

Progesterone or progestin, to be effective for menorrhagia, must be given in large enough doses to counterbalance any increased estrogen effects. One common problem is that low "HRT" type progestin doses (such as 2.5 or 5.0 mg of medroxyprogesterone) are used. Instead, the starting dose for menorrhagia treatment should probably be double the usual luteal phase dose. That means 20 mg of medroxyprogesterone acetate (MPA) or 600 mg of oral micronized progesterone (OMP, Prometrium®). Also progesterone or progestin must be taken for at least 16 days per cycle (days 12-27). Medroxyprogesterone doses should be split with 10mg in the morning and 10mg at night. When you are aware that flow is heavy, no matter the cycle day, progestin or progesterone should be started immediately and given for 16 days. In my experience the following combination of MPA and OMP is effective. Because OMP cannot be given during the day without causing excess drowsiness, and MPA is more active on the endometrium, I would initially give a dose of 10 or 20 mg of MPA. I would then continue therapy for 16 days with MPA 10-20 mg in the morning and OMP 300-400 mg at bedtime.

If a woman gives a history of anovulatory androgen excess (acne and unwanted facial hair) or says that heavy bleeding has been going on for "all her life" or for many months, it is a good idea to start progestin therapy continuously rather than cyclically. I usually treat with continuous high dose

progestin/progesterone therapy for three months. Following that, a cyclic treatment with higher dose medroxyprogesterone or OMP days 12 through 27 of the cycle for six more months is prudent. Give your patient the [Cyclic Progesterone Therapy handout](#) [17].

If your patient is perimenopausal, is over 40 or has ever had menorrhagia and will be in a remote area or traveling, I suggest supplying her with medroxyprogesterone 10 mg for 16 days and information about what she can do for heavy flow.

What can I do for a menorrhagia emergency if other measures are insufficient?

Thankfully there are two further acute medical therapies for menorrhagia that have been shown to be both safe and effective in controlled trials and have been tested in randomized trials in comparison with hysterectomy or endometrial ablation. One therapy is the use of tranexamic acid which acts to increase the activity of the fibrin system (13 [18]) and the other is the levonorgestrel-releasing IUD, Mirena®. I believe that both tranexamic acid and the LNG-IUD should be given along with ibuprofen and with a physiological dose cyclic progesterone therapy.

Tranexamic acid is used post operatively or for bleeding disorders. Because it is not commonly used, you should look up in a drug reference book. It is given in a dose based on the weight of the patient every four hours for two or three days of heavy flow. It has been shown to be superior to a non-steroidal agent such as ibuprofen (13 [19]) and to reduce flow by about 50% (14 [20]). I suggest continuing the progestin/progesterone therapy as above but add tranexamic acid if the flow remains or becomes very heavy despite it.

A levonorgestrel-releasing intrauterine device (LNG-IUD) for contraception and treatment of menorrhagia has recently become available in North American (after use in Finland and Europe for years). The common brand of LNG-IUD is Mirena® that releases either 20 or 10mg of levonorgestrel per day and reduces flow by 94% (12 [21]). A meta-analysis of randomized controlled trials of LNG-IUD compared with endometrial ablation showed similar reduction in blood flow and improved quality of life over the longer term without the risks of surgery (15 [22]). One 12-month study randomized 236 women (mean age 43, BMI 26, and menstrual blood loss of 129 ml/flow) to LNG-IUD or hysterectomy. Results showed similar improvement in quality of life using the SF-36 although pain was greater in the IUD group (16 [23]). Total and health care costs were triple for the hysterectomy group even though 20% of those randomized to LNG-IUD had hysterectomy during the year (16 [24]).

Disadvantages of surgical treatments for Menorrhagia

About 40-50% of North American women have had hysterectomy for benign reasons, allegedly for fibroids or menorrhagia (17 [25]). Besides the direct cost of hysterectomy, it requires at least six weeks of post-operative recovery and is sometimes associated with changes in a woman's sexual response or a sense of loss. In perimenopause, when there is no flow to indicate the hormonal changes, women often become disoriented and find the experiences difficult to understand. At least two epidemiology studies have shown that perimenopausal women who have had a hysterectomy visit their health care providers more often than those who have not.

Endometrial ablation, which can be done by many different techniques, has been advanced as less invasive and expensive surgery than hysterectomy. However, in a randomized comparative trial with follow-up over almost three years, 22% required repeat operation. Although both groups were improved in health related quality of life, the pain dimension was more improved in those with hysterectomy and satisfaction with treatment was greater. Costs of endometrial ablation had increased to 71% of that of hysterectomy after a little over two years of follow-up (18 [26]) and, in another 4-yr study reached 93% of that of hysterectomy

(19 [27]). Endometrial ablation is also commonly associated with unscheduled, irregular flow and spotting and in about 18-20% with pelvic pain.

Wrapping it up

In summary, menorrhagia meaning blood loss of 80 ml or 16 soaked regular sanitary products or more occurs in 25% of early perimenopausal women and in some women of other ages. It is first treated with non-steroidal anti-inflammatory medications, fluid support and then with high dose cyclic progesterone. If further measures are needed, tranexamic acid or LNG-IUD can be used in addition to cyclic progesterone therapy and ibuprofen. Mirena® reduces blood flow by 94% and tranexamic acid by 50%. Most women prefer that these medical measures be optimally used before they want to consider surgical treatments such as hysterectomy or endometrial ablation.

It is important to assess and treat anemia and to maintain therapy for cramps. In early perimenopause heavy flow is sufficiently common that women in remote places or traveling should have a 16-day supply of medroxyprogesterone. Perimenopausal menorrhagia is very distressing to women, however it does resolve, even if untreated, over five or so years (20 [28]).

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