Dysmenorrhoea:
An update on primary healthcare management

CPD

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Background
Dysmenorrhoea is the most common gynaecologic condition affecting people assigned female at birth and has significant effects on immediate and long-term quality of life. Effective treatments are widely available at low cost but often have poor uptake. There is growing evidence that a significant proportion of people with severe dysmenorrhoea will develop other persistent pain syndromes and dysmenorrhoea might be a key contributor to the development of those conditions.

Objective
The aim of this article is to provide an update on dysmenorrhoea and its management in a primary care setting, including evaluation and treatment.

Discussion
Treatment decisions should incorporate shared decision making and account for the preferences and goals of the patient, including fertility plans. First-line treatments include non-steroid anti-inflammatory drugs and hormonal therapies. Various non-pharmacologic therapies and lifestyle modifications can complement first-line medical therapies or be used as alternatives when medical therapies are contraindicated or declined.

DYSMENORRHOEA, defined as painful menstruation, is one of the most common gynaecologic conditions affecting adolescents, women and people assigned female at birth (AFAB) during their menstruating years. Reported prevalence varies from 45% to 95% of all menstruating people[1,2] and up to 93% of adolescents.[3] There can be cultural influences on reporting or seeking care due to the normalisation of menstrual pain, stigma, shame and misinformation,[2] but the rates do appear to be consistent across cultures irrespective of geographic location, economic status of the country and ethnicity.[2,4] An Australian study of people AFAB aged 16 to 29 found that 88% reported dysmenorrhoea, although only 34% had ever consulted a healthcare provider about period pain. In contrast, 86% had sought information about period pain from other sources, such as the internet, social media, family or friends.[5] Clinicians have a role to play in screening for dysmenorrhoea in their patients and recognising that there can be unique challenges in providing care in a safe way for all patients, including those living with disability, First Nations people, those with culturally and linguistically diverse backgrounds and those who identify as transgender, non-binary, lesbian, intersex and queer.[6]

Dysmenorrhoea has substantial social, educational and economic impacts. It is the leading cause of recurrent, short-term school or work absenteeism among women of child-bearing age.[7] According to De Sanctis et al, 20% of girls and women reported absences from school or university due to dysmenorrhoea, and 40% reported a negative effect on their schoolwork or focus.[2] Thirty-seven per cent reported a reduction in other activities, such as participation in social or sporting activities.[2] An estimated 10–30% of people with dysmenorrhoea who are working or studying lose one to two working days per month.[7]

Primary dysmenorrhoea

Dysmenorrhoea is classified as primary or secondary based on whether underlying pathology is found, with secondary dysmenorrhoea accounting for around 10% of cases.[1,7–11] Primary dysmenorrhoea typically presents as crampy pelvic pain in the lower abdomen or pelvis, occurring just before and/or during menstruation and lasting 8–72 hours.[1,7] The pain might radiate to the back or thighs, and accompanying systemic symptoms are common, including nausea, vomiting, diarrhoea, fatigue, bloating and insomnia.[1,7] Typical onset is 6–12 months from menarche.[1] Risk factors for primary dysmenorrhoea include smoking, menarche <12 years, age <30 years, longer and heavier menstrual flow, low or high body mass index (<20 or >30), nulliparity, positive family

history, previous sexual assault, premenstrual symptoms, previous pelvic inflammatory disease and psychological disorders.[6,12,13] Protective factors include increasing age, increasing parity, exercise and oral contraceptive use.[6,14,15]

The main mechanism of primary dysmenorrhoea, whether primary or secondary, appears to be uterine myometrial hypercontractility and vasoconstriction as a result of elevated levels of prostaglandins released by degenerating cells during endometrial sloughing.[1,7,13] Prostaglandin F2 ($PGF_{2\alpha}$) and prostaglandin E2 (PGE_2) in particular appear to be important, and $PGF_{2\alpha}$ is thought to have a direct effect in sensitising pain receptors. There are elevated concentrations of $PGF_{2\alpha}$ in the menstrual fluid of people with primary dysmenorrhoea, and the intensity of pain is proportional to the amount of $PGF_{2\alpha}$ present.[1,7]

Secondary dysmenorrhoea

Secondary dysmenorrhoea is menstrual pain attributed to pelvic pathology.[12] The most common aetiology is endometriosis,[7,12] but other aetiologies include congenital or acquired obstructive and non-obstructive abnormalities, such as Mullerian malformations, adenomyosis, leiomyomas, pelvic masses and infection.[12] The onset of secondary dysmenorrhoea can occur at any time depending on the underlying condition, and people with secondary dysmenorrhoea share some of the same characteristics and pathways to pain as those with primary dysmenorrhoea, such as increased uterine prostaglandins.[7] Symptoms that should prompt consideration of secondary dysmenorrhoea include worsening pelvic pain, abnormal bleeding, vaginal discharge, dyspareunia and a lack of response to treatment such as non-steroidal anti-inflammatories (NSAIDs) or hormonal treatments.[7,10,12]

Dysmenorrhoea as a cause for pain sensitisation

There appears to be altered pain sensitivity in people with primary dysmenorrhoea,[1] and there is a growing body of evidence to support the role of central sensitisation in its aetiology.[7,16,17] There is a high co-occurrence with, or progression to, other chronic pain conditions, including irritable bowel syndrome, low back pain, interstitial cystitis/painful bladder syndrome, chronic pelvic and abdominal musculoskeletal pain, vulvodynia, fibromyalgia, chronic headache, temporomandibular joint disease and chronic fatigue syndrome.[16,18,19] Experimental studies have found that there are alterations in the central processing of experimental noxious stimuli and that these alterations persist when there is no background pain and in response to stimuli at a distant site from that of the clinical pain.[20] This suggests possible maladaptive functionality of pain modulatory systems in people with primary dysmenorrhoea, making them vulnerable to functional pain disorders.[18]

Evaluation

Initial evaluation should include a review of symptoms and a thorough medical history incorporating medical, surgical, gynaecologic, menstrual and family history and treatment to date.[10,12] Pelvic examination is not routinely indicated if the history suggests primary dysmenorrhoea but should be performed, along with a pelvic ultrasound, if there are features of secondary dysmenorrhoea.[10,12] Pregnancy should be excluded in patients who are sexually active and consideration given to screening for infections.[12] Both primary and secondary dysmenorrhoea are likely to respond to the same therapy, so initiation of treatment should not depend on establishing a diagnosis.[10]

Management

Non-steroidal anti-inflammatory drugs

NSAID drugs inhibit cyclo-oxygenase, the enzyme that allows for production of prostaglandins, and have a direct analgesic effect in the central nervous system.[1] They are considered the first-line therapy for primary dysmenorrhoea.[10,12] All currently available NSAID drugs are of comparable efficacy and safety.[10] NSAIDs should be taken on a regular dosing regimen and ideally should be initiated 1–2 days before the onset of menses and continued in regular dosing intervals through the first 2–3 days of bleeding, correlating with the highest levels of prostaglandins.[10,12,21] Patients reported lower pain scores when using a regimen with a higher loading dose followed by a lower scheduled amount over a traditional same-dose regimen.[21] Only one-third of young patients take their recommended daily dosage, highlighting the need for prescribers to emphasise the recommended dosing regimen.[1] Up to 20% of patients report minimal or no relief.[7,8,12] NSAIDs can be associated with gastrointestinal side effects, which can be ameliorated by taking with food or switching to a COX-2 inhibitor.[10,12,17]

Hormonal therapies

Both combined and progesterone-only hormonal therapies can be used to treat dysmenorrhoea and should be offered to adolescent and adult patients with dysmenorrhoea who are not currently planning pregnancy unless contraindications exist.[7,10,17]

Combined oral contraceptives are effective for treating dysmenorrhoea in up to 90% of patients.[1] They work by inhibiting ovulation and preventing endometrial proliferation, which decreases prostaglandin, progesterone and vasopressin production.[1,7,9] Continuous or extended use of hormonal contraceptives is recommended over cyclic use.[1,10] There is an increased risk of venous thromboembolism with oral contraceptives, and use in some patients might be contraindicated.[7]

Progesterone-only hormonal treatments can also be effective treatments for dysmenorrhoea, including oral progestogens, etonogestrel implants, depot medroxyprogesterone acetate and levonorgestrel-releasing intrauterine systems (LNG-IUS).[1,7,17] In most cases, they work by inhibiting ovulation and induce endometrial atrophy, which reduces menstrual bleeding. LNG-IUS have been shown to improve both primary and secondary dysmenorrhoea and are safe to use in nulliparous and adolescent patients.[17] Irregular bleeding is common with progesterone-only options.[1]

Other pharmacological interventions

Various supplements and medications have been evaluated for dysmenorrhoea. Most either lack sufficient evidence of benefit or have unacceptable side effects.[1,7,22] Ginger has a range of anti-inflammatory actions, including inhibition of cyclo-oxygenase and

lipoxygenase activity.[23] Evidence supports that ginger can be an effective treatment for dysmenorrhoea and has the added benefit of anti-emetic properties.[1,10,24]

Non-pharmacological interventions

Several non-pharmacological interventions have been shown to be effective in treating dysmenorrhoea.[7,10] Regular exercise has been shown to improve dysmenorrhoea symptoms, probably through increased blood flow and endorphin release and lowering stress and anxiety.[25] There is low-quality evidence that 45–60 minutes of exercise of any intensity three or more times per week provides a clinically significant reduction in menstrual pain.[25] Local heat, in the form of heated pads or patches, increases blood flow and improves tissue oxygenation; it has been shown to be comparable to ibuprofen for treating dysmenorrhoea and to be superior to paracetamol or no intervention.[26] High frequency transcutaneous electrical nerve stimulation (TENS) has been shown to be superior to placebo for dysmenorrhoea and is helpful in approximately 30% of cycles in people with severe dysmenorrhoea, whereas lower doses of NSAIDs are required to manage pain in the remaining cycles.[1,9] There is low-quality data supporting the effectiveness of acupuncture and acupressure,[27] and these therapies can be considered for those wishing to use complementary or alternative therapies.[10] Many studies have evaluated various types and methods of physiotherapy for dysmenorrhoea.[28] Overall, almost all studies of physiotherapy have shown a significant improvement in pain intensity among patients with dysmenorrhoea.[9,28]

Surgical intervention

Surgical intervention should only be considered for primary dysmenorrhoea if a concerted trial of medical therapy has not been successful.[10] Preoperative assessment should be undertaken to look for secondary causes and to direct appropriate therapy, including a detailed history and clinical examination, a pelvic ultrasound and possibly magnetic resonance imaging.[1,10] Consideration should be given to the goals of treatment, including fertility wishes, and any other comorbid conditions such as heavy menstrual bleeding[9,10]

Conclusion

Dysmenorrhoea is a common and sometimes debilitating condition that profoundly affects individuals' quality of life. Most patients will respond to interventions that can be initiated in a primary care setting, and yet dysmenorrhoea is frequently undertreated despite effective therapy being widely available at minimal cost. Patients should be encouraged to discuss their menstrual health with their general practitioner to improve uptake of treatment, and practitioners should consider screening for dysmenorrhoea at the time of other preventative health checks, such as cervical screening. All healthcare providers have an obligation to equip themselves with a sound understanding of the basics of care.

Key points

- Dysmenorrhoea is common, affecting around three-quarters of women of reproductive age with varying severity.
- Empiric therapy with non-steroidal anti-inflammatories and/or hormonal therapies should be offered as the first-line therapy to women with symptoms consistent with primary dysmenorrhoea.
- Patients who have symptoms indicative of secondary dysmenorrhoea should undergo evaluation and investigation for underlying pathologies but should also be offered the same first-line therapies as patients with primary dysmenorrhoea.
- Non-pharmacological therapies can be used to complement medical therapies or as an alternative if medical therapies are unsuitable or unacceptable to the patient.
- Dysmenorrhoea has a high association with other chronic pain conditions and might be a contributor to their development, including central sensitisation.

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Competing interests: None.

Funding: None.

Provenance and peer review: Commissioned, externally peer reviewed.

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