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## Medical management of Dysmenorrhea

Rajni Mittal

[rajnimttl@yahoo.com](mailto:rajnimttl@yahoo.com)

North Delhi Municipal Corporation Medical College and Hindu Rao Hospital, Delhi

### ABSTRACT

*Dysmenorrhea is a very common problem affecting women and may be primary or secondary. Pain in dysmenorrhea is mediated by hypersecretion of prostaglandins and uterine hypercontractility. Secondary dysmenorrhea is due to some underlying pathology like endometriosis, adenomyosis. The treatment options include NSAIDs as first-line drugs, Oral contraceptives alone or in combination with NSAIDs or progestins. Cases refractory to combined therapy need further evaluation to rule out the secondary cause.*

**Keywords**— *Dysmenorrhea, NSAIDs, Oral contraceptives, progesterones, LNG IUS*

### 1. INTRODUCTION

Dysmenorrhea is defined as the occurrence of painful cramps of uterine origin during menses and is one of the most common causes of pelvic pain which affects the quality of life of women in their reproductive age. The word dysmenorrhoea is derived from the Greek words dys- meaning difficult/painful/ abnormal; meno- month; and rhea- to flow.<sup>1,2</sup> Burden due to dysmenorrhea exceeds all other gynecologic complaints but still, it is undertreated.<sup>3</sup> WHO has estimated that dysmenorrhea is the most important cause of chronic pelvic pain.<sup>4</sup> Chronic pelvic pain is located in the pelvis and lasts for 6 months or more.<sup>5</sup> Dysmenorrhoea may occur a few days prior to or during menstruation but normally subsides as menstruation finishes.<sup>5</sup> Risk factors for dysmenorrhoea include early menarche, nulliparity, cigarette smoking and family history.<sup>6</sup>

### 2. MANAGEMENT

Dysmenorrhea should be graded according to the severity of pain and the degree of limitation of daily activity to guide the treatment strategy. It is preferable to individualize the treatment according to the complaints of the patient, associated complaints, age and need for contraception.

The aim of treatment in primary dysmenorrhea is mainly pain relief and treat associated symptoms (e.g. a headache, nausea, vomiting, flushing, and diarrhoea) that typically accompany or immediately preceding the onset of menstrual flow. Self-medication with analgesics and NSAIDs and direct application of heat are commonly used strategies.

In secondary dysmenorrhea, treatment is targeted to treat the underlying cause which may require specific medical or surgical procedures. These may be supplemented with periodic medical therapy.<sup>7</sup> Some modalities used to treat primary dysmenorrhea may also benefit the individuals suffering from secondary dysmenorrhea.<sup>8</sup> Both primary and secondary dysmenorrhea are likely to respond to the same medical therapy. There is no need to establish the precise diagnosis prior to initiation of treatment. Though specific questions may be asked in history it is not necessary to carry out pelvic examination prior to initiating treatment. Pelvic examination should be carried out once primary medical therapy fails and one suspects an underlying pathology.<sup>9</sup> Besides pelvic examination, find out the cause of stress at home, school or workplace and sonography if the pelvic examination is inadequate. There are high chances of detecting occult endometriosis on laparoscopy in such cases.<sup>10</sup>

Reassurance and education are equally important besides medical therapy in the treatment of dysmenorrhea. Clinicians can inform women that physical activity may be an effective treatment for primary dysmenorrhea but there is a need for high-quality trials before this can be confirmed.<sup>11</sup>

**Table 1: The treatment options may be medical, surgical or complementary therapies.**

<b>Medical management</b>
NSAIDs
Oral contraceptives
LNG IUS

<b>Surgical options</b> Uterosacral nerve ablation Presacral neurectomy
<b>Other management options</b> Transcutaneous electric nerve stimulation (TENS) Yoga Physiotherapy Heat Herbal treatment Diet modification Massage

### 3. MEDICAL TREATMENT

Medical treatment remains first-line treatment and is most reliable and effective in treating dysmenorrhea. Although medical therapy is effective in treating dysmenorrhea, there is an overall failure rate of 20–25%.<sup>12</sup> NSAIDs and OCPs are the most commonly used medical treatments. They have a different mechanism of action so they may be used simultaneously in refractory cases.<sup>13</sup> Patients who are resistant to combined therapy, the secondary cause should be ruled out and a multidisciplinary approach may be indicated.

#### 3.1 NSAIDS

NSAIDS are first-line treatment and should be tried for at least 3 menstrual periods.<sup>14,15</sup> With the wide availability of NSAIDS, self-care has become the prime treatment modality.<sup>16</sup> Cochrane review found that commonly used NSAIDS like naproxen and ibuprofen are very efficacious in relieving pain in dysmenorrhea and are more efficacious than placebo. NSAIDS approved by FDA in treating dysmenorrhea include Diclofenac, Ibuprofen, Ketoprofen, Meclofenamate, Mefenamic acid and Naproxen.<sup>17</sup> Aspirin may not be as effective as these NSAIDs, and acetaminophen may be a useful adjunct for alleviating only mild menstrual cramping pain.<sup>18,19</sup> There is no greater benefit of any specific NSAID.<sup>20</sup> Indomethacin should be avoided due to serious side effects. In a summary of 51 studies, Owen<sup>21</sup> demonstrated that pain relief was there in 87% for the fenamates versus 56%, 68%, and 56% for ibuprofen, indomethacin, and naproxen, respectively, although the summary has some minor misinterpretations of at least one primarily methodological report.

NSAIDS inhibit cyclooxygenase and thereby block the production of prostaglandins. NSAIDS reduce moderate to severe pain and reduce the severity of menstrual cramps and prevent further symptoms like nausea and diarrhea.<sup>22</sup> NSAIDS should be taken early and in sufficient quantity to alleviate dysmenorrhea. NSAIDS like ibuprofen, naproxen, and meclufenamate which achieve peak level within 30-60 minutes and have a faster onset of action should be preferred. One should use a particular agent for at least 2-4 months before labelling it ineffective. One may try several agents prior to deciding which NSAID suits the individual most. If one therapy fails one may try to respond to another NSAID. To avoid inadvertent exposure to these agents during early pregnancy, start NSAIDs once menses begin. NSAIDS are associated with a significant risk of adverse effects, like gastric reflux. As they are used in short-term, they are well tolerated but patients should be monitored for more serious side effects like GI bleed and renal toxicity. Contraindications for NSAIDs include renal insufficiency, peptic ulcer disease, gastritis, bleeding diatheses, or aspirin hypersensitivity.

COX-2 specific inhibitors are also effective in treating dysmenorrhea as COX 2 derived prostanoids are involved in the pathology of primary dysmenorrhea. They have the advantage of fewer GI side effects which occur due to inhibition of COX 1 receptors. COX-2 inhibitors are not more effective than conventional NSAIDS.<sup>24</sup> COX 2 inhibitors may be preferred in those patients who do not tolerate conventional NSAIDS or in whom they are contraindicated.<sup>24</sup> Despite a decreased incidence of GI side effects with COX-2 inhibitors, their use by patients with active GI ulcers, infection with *Helicobacter pylori*, or inflammatory bowel disease has not been adequately studied. Contraindications for COX 2 inhibitors include aspirin-sensitive asthma, ulcers, significant renal impairment, or inflammatory bowel disease.

They are more expansive besides there is a lack of clinical efficacy studies on COX-2 inhibitors hence they should be used as second-line therapy for dysmenorrhea.

#### 3.2 Oral Contraceptives

OCPs are commonly used to treat heavy menstrual bleeding and irregular bleeding besides being used as contraceptives. Oral contraceptives are effective in treating dysmenorrhea as they inhibit ovulation and thereby reduce production of prostaglandins by endometrial glands regardless of the route of administration.<sup>25,26</sup> OCPs are more effective than placebo. Prostaglandin levels were found to be lower in anovulatory cycles and this prompted the use of oral contraceptives (OCs) to suppress ovulation and relieve menstrual pain.<sup>27,28</sup> Hormonal therapies should be offered to females who are not currently planning pregnancy unless contraindications exist.<sup>29</sup> OCPs should be used in a continuous fashion in primary dysmenorrhea with the dual benefit of treating the associated menstrual disorder and improving pain during periods.<sup>30</sup> A recent Cochrane review has shown limited efficacy of OCPs because studies have not been conducted well.<sup>31</sup> There is limited evidence to recommend OCs as standard treatment for dysmenorrhea.<sup>12</sup> No RCTs have been conducted to compare OCPs with NSAIDS. OCPs carry additional benefit of contraception but have associated adverse effects like venous thromboembolism and cardiovascular effects. Use of OCPs for treatment of dysmenorrhea has not been approved by FDA.<sup>32</sup>

#### 3.3 Oral progesterone

Progestins act by inhibiting ovulation and cause endometrial atrophy. Various long-acting progesterone includes LNG IUS 52 mg releasing 20 µg/day, Etonorgestrel subdermal implant and DMPA.<sup>33</sup> LNG IUS is also effective in the treating secondary

dysmenorrhoea associated with endometriosis and adenomyosis. The LNG IUS can be used in women in whom estrogen is contraindicated and is not well tolerated.<sup>34,35</sup> Use of progesterone to treat dysmenorrhea depends on patient's pain relief, adverse effects like weight gain, acne and thromboembolism.<sup>36</sup>

### 3.4 Other medical treatments

Calcium channel blockers and Glyceryl trinitrate relax the myometrium but their use in the treatment of dysmenorrhea is under evaluation.<sup>37</sup>

## 4. CONCLUSION

Dysmenorrhea is an important and common cause of chronic pelvic pain and affects a large section of women. Medical therapy remains the first line treatment in dysmenorrhea. Medical management includes NSAIDs, oral contraceptives and progesterone or a combination of NSAIDs and oral contraceptives. Most of the NSAIDs are effective in relieving pain and may be taken over the counter. If medical therapy fails patient should be evaluated to rule out secondary underlying pathology.

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