REVIEW ARTICLE 1

Management of Primary Dysmenorrhea

Reviewed by:

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Introduction

Primary dysmenorrhea (PD) refers to cramping pain in the lower abdomen that occurs just before or at the start of menstruation, without any underlying pelvic disorder. It is a common issue among both adolescents and adults, typically beginning within 6 to 24 months after the first menstrual cycle.[1]

The pain follows a predictable pattern, often peaking on the first day of menstruation and lasting up to three days. Despite its widespread occurrence and its effect on daily life, PD is frequently overlooked or inadequately managed. Many young females tolerate the discomfort without seeking medical help due to feelings of embarrassment, societal stigma, or the perception that menstrual pain is a normal and unavoidable experience.[1]

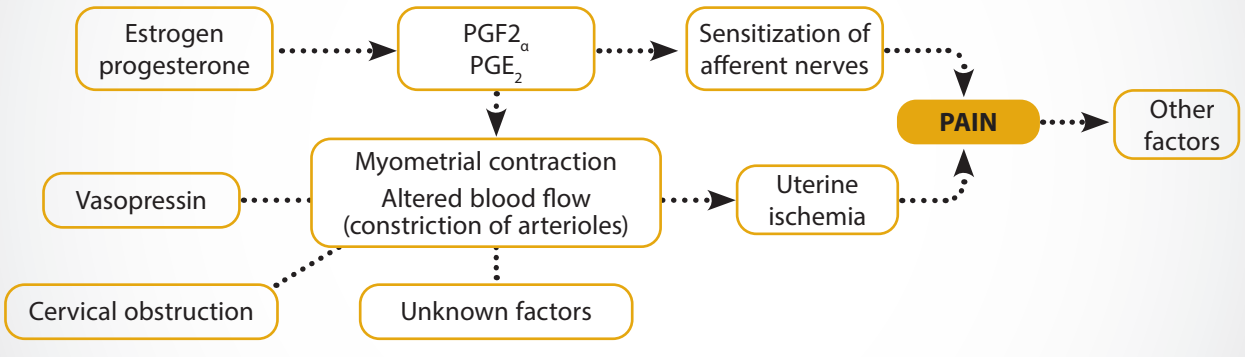
Epidemiology

The global prevalence of PD varies widely, ranging from 45% to 95% among females of reproductive age, with 2% to 29% experiencing severe pain. Also, PD tends to be more common in younger women, with prevalence rates reported between 70% and 90% in those under 24 years of age.

Pathophysiology of Primary Dysmenorrhea

- Dysmenorrhea is primarily caused by increased secretion of prostaglandin $F2_{\alpha}$ ($PGF2_{\alpha}$) and prostaglandin E_2 ($PGE2$) during endometrial sloughing, leading to myometrial contractions, vasoconstriction, uterine ischemia, and pelvic pain[1]

Figure 1. Pathophysiology of Primary Dysmenorrhea[2]



- Prostaglandins are synthesized via the arachidonic acid cascade, regulated by progesterone through phospholipase A2 activity. A decline in progesterone during the late luteal phase triggers endometrial sloughing, prostaglandin release, and menstrual pain.
- Studies show that dysmenorrheic females have higher prostaglandin levels than eumenorrheic females, with increased $PGF2^{\alpha}$ and PGE^{2} concentrations directly correlating with pain intensity and menstrual cramps.[1]

Characteristics and Associated Symptoms of Primary Dysmenorrhea

Onset and Duration:

- Pain begins 1–2 days before menstruation or just after menstrual flow starts.
- Typically lasts between 8 to 72 hours.

Pain Location:

Lower abdomen and pelvic region.

Associated Symptoms

Physical Symptoms	Psychological Symptoms
Systemic: Headache, lethargy, fatigue, sleep disturbances, breast tenderness, heavy lower abdomen, backache, painful knees and inner thighs, myalgia, arthralgia, and swollen legs.	Anxiety, depression, irritability, nervousness.
Gastrointestinal: Changes in appetite, nausea, vomiting, bloating.	Higher prevalence of depression, anxiety, and excess somatic symptoms in dysmenorrheic females.
Elimination-related: Constipation, diarrhea, frequent urination, sweating.	Possible neurological involvement and shared genetic factors linking dysmenorrhea with psychological symptoms.

Diagnosis of Primary Dysmenorrhea[1]

Primary Diagnosis: Based on focused medical history and physical examination to rule out pelvic pathology.

Physical Examination:

- Not always required if symptoms are typical of primary dysmenorrhea.
- Pelvic examination is recommended for sexually active females with suspected STDs, pelvic inflammatory disease (PID), or severe dysmenorrhea.

Empiric Treatment:

- Can be initiated without physical examination in typical cases.
- Includes nonsteroidal anti-inflammatory drugs (NSAIDs) and/or oral contraceptives.

Treatment of Primary Dysmenorrhea[1]

1. The primary goal of treating primary dysmenorrhea is to provide effective pain relief, improve quality of life, and reduce absenteeism from academic or work commitments.
2. Both pharmacological and non-pharmacological approaches are available, with NSAIDs and hormonal contraceptives being the first-line treatments due to their ability to inhibit prostaglandin production.
3. Empiric therapy with either NSAIDs or hormonal contraceptives is recommended for typical cases.
4. If symptoms persist despite treatment for 3–6 months, adherence should be evaluated before switching to alternative therapy.
5. In cases where monotherapy is ineffective, a combination of NSAIDs and hormonal contraceptives may be considered.

Fixed dose of Antispasmodic and NSAID in the Management of Primary Dysmenorrhea[3]

An antispasmodic and a NSAID, mefenamic acid is believed to be an ideal combination for the treatment of conditions where pain is associated with spasm likely dysmenorrhea. Mefenamic acid inhibits prostaglandin synthesis and drotaverine acts as an antispasmodic. Drotaverine, a benzylisoquinoline derivative, has smooth muscle antispasmodic properties. It is a non-anticholinergic antispasmodic. It relieves smooth muscle spams by increasing intracellular levels of cyclic-adenosine-monophosphate (cAMP), secondary to the inhibition of phosphodiesterase. Because of this antispasmodic action, it is widely used in biliary and renal colic, for augmentation of labor, dysmenorrhea and before instrumental diagnostic procedures. Drotaverine as a smooth muscle relaxant reduces uterine contraction, which eventually improves uterine blood flow and hypoxia. Drotaverine is also free of the side-effects associated with the known anticholinergic anti-spasmodics like dicyclomine. Drotaverine is non-toxic, its side effects are very minimal and it can be administered even to children.

By virtue of two different mechanisms of action due to different active ingredients, a fixed dose combination of drotaverine hydrochloride with mefenamic acid would be expected to provide comprehensive and rapid relief from pain, spasm and/or inflammation in patients of primary dysmenorrhea and the combination of the two seems to be an attractive option. Thus, a study was undertaken to evaluate the effectiveness of fixed dose combination of NSAID (mefenamic acid) and antispasmodic (drotaverine hydrochloride) in women with primary dysmenorrhea as compared to mefenamic acid alone.

Efficacy of Mefenamic Acid and Drotaverine Hydrochloride Combination in Primary Dysmenorrhea: A Comparative Study[3]

Objective

To compare the efficacy of a combination of mefenamic acid and drotaverine hydrochloride with mefenamic acid alone in treating primary dysmenorrhea.

Methods

- **Study Design:** Comparative study involving 180 women diagnosed with primary dysmenorrhea.
- **Participants:**
  - » Group A (n=87): Received a combination of mefenamic acid (250 mg) and drotaverine hydrochloride (80 mg).
  - » Group B (n=93): Received mefenamic acid (250 mg) alone.

Treatment Protocol

Medications were administered during menstruation.

Assessment

Pain intensity, pain relief, patient satisfaction, and clinical scores were assessed before and after treatment.

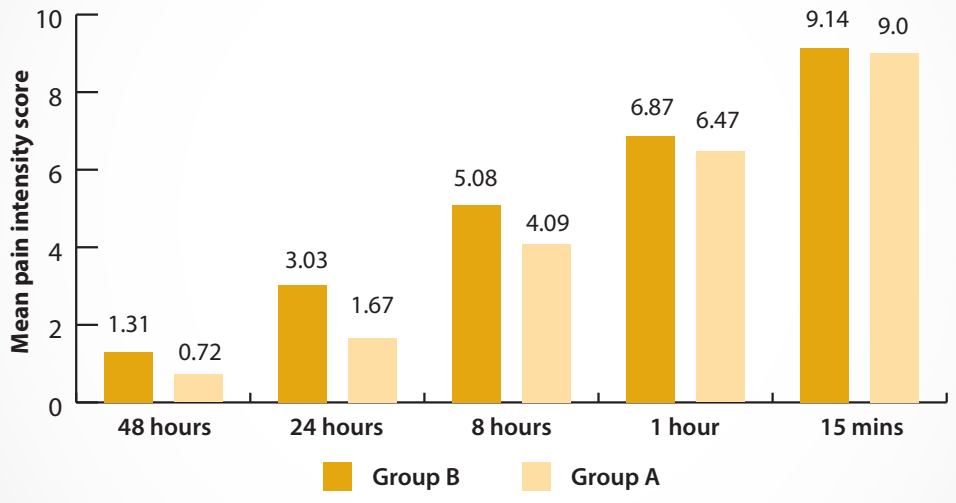
Results

- Post-treatment pain intensity scores were significantly lower in Group A compared to Group B ($p = 0.001$).
- Group A demonstrated significantly higher pain relief, patient satisfaction, and clinical scores than Group B.

Conclusion of Study

The combination of mefenamic acid and drotaverine hydrochloride provides superior pain relief and greater treatment success in primary dysmenorrhea compared to mefenamic acid alone, making it a more effective option for medical management.

Figure 2. Comparison of mean pain intensity scores post-treatment in Group A vs Group B



Conclusion

Primary dysmenorrhea remains a prevalent yet often underdiagnosed and undertreated condition, significantly affecting the quality of life for many women. Effective management requires a combination of pharmacological and non-pharmacological approaches, with NSAIDs and hormonal contraceptives being the first-line treatments. Among pharmacological options, the combination of mefenamic acid and drotaverine hydrochloride has demonstrated superior efficacy in pain relief and patient satisfaction compared to mefenamic acid alone, offering a more comprehensive approach to symptom control. Given its dual mechanism of action—prostaglandin inhibition and smooth muscle relaxation—this combination presents a promising therapeutic option for patients experiencing moderate to severe dysmenorrhea. Further research and awareness are essential to ensure early diagnosis and optimal treatment strategies, ultimately improving patient outcomes and overall well-being.

References

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