Primary Dysmenorrhea

Naturopathic Treatment Options

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Introduction
The term “dysmenorrhea” is commonly used to describe painful menstruation. Considered one of the most common conditions in women’s health, its effective treatment relies on determining and addressing the root cause. When the pain is due to a specific pelvic or systemic condition, it is referred to as “secondary dysmenorrhea”; in the absence of disease or physical abnormalities, menstrual pain is referred to as “primary dysmenorrhea”.

Accurate diagnosis relies on a thorough history and physical exam. A study of menstruating Canadian women revealed that 60% reported primary dysmenorrhea; 51% reported the pain affected their activities of daily living, and 17% reported absenteeism.[1] The social implications and prevalence of this condition warrant safe and sustainable treatments. This article will explore therapeutic options for primary dysmenorrhea.

Key Features
The initial onset of primary dysmenorrhea is typically within the first year of menarche once ovulation begins to occur.[2] If dysmenorrhea occurs later than this timeframe, secondary causes should be evaluated. The pain usually starts a few hours before menstrual flow and can last between two and three days. The pain occurs in the suprapubic region and is often described as cramping. It may be associated with nausea, vomiting, and diarrhea.[3] It is a diagnosis of exclusion,
once secondary causes have been ruled out. All physical examinations and imaging studies should reveal normal findings. The current understanding of primary dysmenorrhea is that an imbalance in spasmodic prostaglandins leads to uterine contractions, which decrease blood flow to the uterus and cause pain.[2] The prostaglandins specifically responsible are PGF$_2$-alpha and PGE$_2$.\[2\] During ovulation, the decrease in progesterone triggers the release of these prostaglandins. For this reason, it is understood that primary dysmenorrhea occurs only during ovulatory cycles.[2] Conventional and natural treatments target this mechanism of action. Current conventional treatment includes nonsteroidal anti-inflammatory drugs (NSAIDs) and oral contraceptives. NSAIDs inhibit prostaglandin release, while oral contraceptives suppress ovulation, decrease menstrual volume, and decrease prostaglandins accordingly.[2] Although these treatments offer temporary relief, they do not correct the underlying imbalance of prostaglandins.

**Diet & Lifestyle**

Dietary changes are an integral part of a primary dysmenorrhea treatment plan. A therapeutic diet should focus on decreasing the production of PGF$_2$-alpha and PGE$_2$ to reduce spasmodic pain, while increasing nutrients to promote functional change in the pelvis. Arachidonic acid (AA) is the precursor to PGF$_2$-alpha and PGE$_2$. Avoiding food high in AA — including egg yolks, red meat, and poultry — decreases the production of these prostaglandins and reduces uterine contractions.[4] Saturated fats also stimulate the PGE$_2$ series. Research has shown that when females consume a low-fat vegetarian diet, their pain intensity and duration decreases.[5] Foods that promote antispasmodic prostaglandins, PGE$_1$ and PGE$_3$, also effectively decrease menstrual cramps.[6] Fish — including salmon, mackerel, tuna, halibut, and sardines — increase omega-3 fatty acids, which produce PGE$_3$. A diet rich in nuts and seeds — including pumpkin, flax, sunflower, and sesame — increase these prostaglandins as well.

Identifying aggravating foods and eliminating them from the diet may also help reduce symptoms. Foods that promote gas and bloating in sensitive individuals, such as dairy and salt, may further aggravate menstrual pain.[4] Food sensitivities have also been associated with certain cases of dysmenorrhea.[7] Reducing intake of these foods can decrease overall discomfort and offer additional benefit to a therapeutic diet. A whole-foods diet rich in fruits, vegetables, and whole grains (such as oats, millet, amaranth, and rye) will emphasize essential nutrients and fibre to optimize uterine function. Fibre
intake has shown to be inversely proportional to menstrual pain.[8] Many vegetables are high in nutrients essential for optimal muscle function, such as magnesium, calcium, and potassium. In addition, fruits are rich in natural anti-inflammatory substances like bioflavonoids and vitamin C. These nutrients decrease overall inflammation and support circulation to areas of muscle tension to reduce menstrual pain.[4] Lifestyle factors also play a role in primary dysmenorrhea. Smoking, sedentary lifestyle, and stress are associated with increased symptoms.[9] A recent controlled study found that women who exercised regularly experienced a greater positive effect in pain relief than their sedentary counterparts.[10]

**Nutritional Supplementation**

**Magnesium:** A 2001 Cochrane review showed that in patients with dysmenorrhea, magnesium was more effective than placebo for pain relief, and resulted in less use of pain medication.[11] Magnesium is a necessary cofactor for multiple biochemical reactions, including prostaglandin biosynthesis. In one study, magnesium supplementation was shown to decrease PGF$_2$ levels in menstrual fluid by 45%.[12] Magnesium is also known for its role as a smooth-muscle relaxant, and can dilate the pelvic blood vessels to reduce symptoms of dysmenorrhea.[4]

**Omega-3 fatty acids:** Essential fatty acids are the building blocks in our diet that make prostaglandins. There are two essential fatty acid families: omega-6 and omega-3. As briefly mentioned in the dietary section, omega-3 fatty acids are necessary to make the anti-inflammatory prostaglandin, PGE$_3$. Arachidonic acid and PGE$_2$ are among the products created from omega-6 fatty acids. While our bodies require both of these essential fatty acids, the typical Western diet is much higher in omega-6 and leads to an overproduction of PGE$_2$. Increasing omega-3 fatty acids in the diet or through supplementation can offset this imbalance and decrease pain and uterine contractions. In a study of 42 adolescent females, supplementation with fish oil for two months resulted in a significant decrease of reported pain when compared to placebo.[13] A recent study supported these findings. Women who supplemented with omega-3 fatty acids for three months were shown to have less symptoms of primary dysmenorrhea and used less ibuprofen during menses to manage pain.[14]

**Thiamine:** In a randomized, controlled study of 556 menstruating females with spasmodic dysmenorrhea, thiamine supplementation for three months resulted in 87%
of participants experiencing complete symptom resolution. These results remained for two months after the study had resolved, leading researchers to report thiamine as potentially curative. While these results are promising, the trial was conducted in India, an area associated with thiamine deficiency; whether the response would be as profound on a Canadian population remains to be seen.

**Niacin:** Niacin was shown to decrease menstrual cramps in 87.5% of women who took it at a low dose throughout the month and then increased use during episodes of menstrual pain. With niacin use, some women did experience an uncomfortable niacin flush, but none discontinued treatment. Interestingly, the women who did not experience benefit were among the women who did not experience flushing. The vasodilation that causes the niacin flush may aid in increasing circulation to the uterine vessels and decreasing pain.

**Vitamin E:** Vitamin E suppresses the production of spasmodic prostaglandins, while promoting vasodilation and muscle relaxation. In a randomized, controlled trial, vitamin E was shown to decrease the severity of primary dysmenorrhea. While vitamin E demonstrated a more profound benefit, the placebo group also experienced relief. The researchers did further studies and found a significant decrease in pain and the duration of menstrual cramps when vitamin E was supplemented around the menstrual cycle. These findings have been replicated since, supporting the claim that vitamin E can decrease the duration and severity of symptoms in primary dysmenorrhea.

**Conclusion**

An effective treatment approach to primary dysmenorrhea should reduce pain and address the causative factors. This requires a thorough review of diet and lifestyle habits that may be increasing inflammation in the body. While conventional medicine can halt the production of inflammatory prostaglandins through NSAID use, correcting imbalance through naturopathic approaches can create a sustainable solution to primary dysmenorrhea. The treatments mentioned in this article may offer acute pain relief for the patient with secondary dysmenorrhea; however, addressing the root cause should be the target of management. Dysmenorrhea should be assessed by a health-care provider to determine appropriate treatment options and management.
References