

The Usefulness of Low-Dose Oral Contraceptive in the Treatment of Women of Reproductive Age with Severe Motor and Intellectual Disabilities: Five Case Reports

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Abstract

Menstrual cycle has an influence on mind and body of any woman. A collection of symptoms that emerges one or two weeks before menstruation begins is called premenstrual syndrome (PMS), and that involves variety of complex emotional and physical changes. However, aggravation of epileptic attacks during premenstrual period alone has been focused in women with severe motor and intellectual disabilities (SMID). Exacerbation of various symptoms, other than epilepsy, was recognized as PMS in five cases, and these include muscular hypertonia, fever, tachycardia, flushing on face, nausea and vomiting. In these cases, the PMS symptoms were successfully managed with the low-dose oral contraceptive preparations. PMS among patients with SMID are often found to be difficult to diagnose. The use of the low-dose oral contraceptive was effective in women with SMID and improve the quality of their lives (QOL).

Keywords: Severe motor and intellectual disabilities (SMID); Premenstrual syndrome(PMS); Low- dose oral contraceptive; Epilepsy

4. Symptoms occur during two cycles prospectively
5. Patients suffer social or economic dysfunction

Introduction

The existence of menstrual cyclical changes in the emotional and physical state of women of reproductive age has been documented [1,2]. Premenstrual syndrome (PMS) has several definitions and the prevalence was estimated from 75% to 95% of women at their reproductive age [3,4]. Nevertheless, PMS rarely becomes the point at issue in women with SIMD, because of difficulty of its diagnosis.

Though diagnostic criteria has been presented by American College of Obstetricians and Gynecologists (ACOG) (Table 1), women with severe motor and intellectual disabilities (SMID) have limitation in expression and unable to convey their conditions well. Moreover, most physicians have been preoccupied with exacerbation of epileptic attacks in patients with SMID.

Symptoms must occur during the five days before menses for at least three menstrual cycles in a row. At least one affective and one somatic symptom must be present.

Affective Symptoms	Somatic Symptoms
Depression	Breast tenderness
Angry outbursts	Abdominal bloating
Irritability	Headache
Anxiety	Swelling of extremities
Confusion	
Social withdrawal	

2. Symptoms are relieved within four days without recurrence until cycle day 13
3. Symptoms are present in the absence of medicine, hormone ingestion or alcohol use

Table 1: Diagnostic Criteria for premenstrual syndrome (ACOG)
ACOG: American College of Obstetricians and Gynecologists.

Catamenial epilepsy affects approximately one-third of women with epilepsy [5]. This type of epilepsy has generally been defined as a seizure with increased frequency beginning immediately before or during menstruation. It is well accepted that cyclical changes in the concentrations of circulating estrogens and progesterone play a role in the development of catamenial epilepsy. The fluctuations in concentration of antiepileptic drug (AED) and changes in water and electrolyte balance are also thought to be the causes of catamenial epilepsy [6-14].

This is a report of 5 cases in which various symptoms that women with SMID were recognized as PMS, and low-dose oral contraceptive treatment was effective to reduce these symptoms.

Case Reports

The patients were female in their late teens to early thirties who had SMID. All of them seem to have symptoms related to menstruation. Detailed physical examination was carried out, followed by pelvic sonographic examination and Pap smear tests.

The patients with normal pelvic examination received the low-dose oral contraceptive agent, containing 35 micrograms of ethinyl estradiol combined with 1000 micrograms of norethisterone, for dysmenorrhea and PMS. Their menstrual cycle and symptoms were recorded by their family and/or caregivers. The patients received the contraceptive preparations daily for 21 days, followed by 7 days of pill-free interval.

Case 1

A 31-year-old female with SMID suffering from septo-optic-dysplasia with epilepsy and central diabetes insipidus. She was taking multiple antiepileptic drugs (AEDs). She started to present polymenorrhea with vomiting in the last 6 months, and gradually the vomiting became more frequent. Electroencephalograph (EEG) showed no remarkable changes during the episode. The cluster of vomiting happened almost exclusively during the late lacteal phase of the menstrual cycle. The aggravation of vomiting was not considered as a part of epileptic event since no change was seen on EEG. Considering this, PMS was suspected, and low-dose oral contraceptive treatment was started. As a result, the treatment reduced her vomiting, and her menstrual cycle became well-controlled.

Case 2

A 17-year-old young female with congenital cerebral palsy, epilepsy and chronic asthma. She presented spastic tetraplegia with profound mental retardation. She was treated with many kinds of AEDs, muscle relaxant and intramuscular injection of botulinum toxin type A. At puberty, her muscular hypertonia became conspicuous, so it was necessary to gradually increase the dosages of her medications. Menstrual cycle affected on worsening of muscular hypertonicity, and therefore, low-dose oral contraceptive treatment was started in this case. Her spasticity decreased to minimum ever since, and she retained the condition at least 2 years during follow-up visits.

Case 3

A 31-year-old female diagnosed as intractable epilepsy followed by Lennox-Gastaut syndrome. Frequent epileptiform discharges were persistent on her EEG. Though she was taking various kinds of AEDs, her seizure appeared to worsen before and during menstruation. Generalized convulsive status epilepticus was often seen before and during menstruation and occurred once every two or three months. After only one month of the low-dose oral contraceptive therapy, her menstrual period was shortened. Accordingly, occurrence of seizure has decreased significantly, and status epilepticus has disappeared.

Case 4

A 17-year-old young female with SMID and epilepsy secondary to prenatal hypoxic brain injury in her prenatal period. She required tracheostomy, mechanical ventilation and tube feeding to survive. She took various kinds of medications such as AEDs and muscle relaxants. She had her first menstruation when she was 11 years old. After reaching her 14 years of age various symptoms, such as fever, tachycardia, flushing on face, nausea and vomiting, have emerged before menstruation. Diazepam suppository and intravenous midazolam were ineffective, and there was no ictal discharge on EEG at that time. Acetaminophen as analgesic antipyretic medication was

also ineffective. By prescribing only the low-dose oral contraceptive showed remarkable effects on alleviating her symptoms. Being free from her premenstrual symptoms she was able to resume daily activities, and her QOL was much improved.

Case 5

A 28-year-old female with Kernicterus, resulting in athetotic cerebral palsy and severe mental retardation. She was receiving extensive treatment such as muscle relaxants and intramuscular injection of botulinum toxin type A. She had developed a unique non-verbal communication method and was able to convey her suffering to others. Her severe pelvic pain, exacerbated by dysmenorrhea, was not relieved easily by analgesics. By being treated with the low-dose oral contraceptive medication her pain seemed to be much tolerable. Because of the successful pain control, she is now able to go to school comfortably.

Discussion

Backache, nausea, vomiting, diarrhea, headache, fatigue, nervousness and dizziness [15] are commonly associated with menstruation accompanying symptoms in general population. However, as seen in the 5 cases of this study, menstrual symptoms in the patients with SMID exhibited in wide variety. Moreover, such symptoms are often similar to those of epileptic attacks. Thus the cyclical occurrence of epileptic seizures related to menstrual cycle is named catamenial epilepsy. Because epilepsy is the most frequent neurological symptom or complications in women with SMID, most physicians are apt to treat epilepsy at first and often to miss the correlation with the above symptoms and menstrual period. Hypertonia, tachycardia, flushing on face and vomiting may be the expression of pain and discomfort of the patients with SMID are easy to be overlooked because patients themselves cannot say anything about their pain. There is a concern that PMS among many SMID patients is underdiagnosed, and consequently untreated. With careful observation of patients by medical staffs, family members and caregivers can only arrive to make their diagnosis. Then, low-dose oral contraceptive treatment should be considered as one of the treatment option for reducing menstrual symptoms and improving QOL among women with SMID.

In this study 5 cases of successful low-dose oral contraceptive treatment for menstruation-related symptoms among women with SMID (Table 2). Low-dose oral contraceptive medication showed significant effects on reducing the symptoms even though they were not completely free from such symptoms. In addition to the fact that there was no side effect found in these cases, low-dose oral contraceptive therapy made possible to reduce or discontinue other medications, such as AEDs and analgesics, during symptomatic periods.

Case	Age (years)	Mobility	Intellectual disability	Epilepsy	Menstrual symptoms	efficacy	Follow up (months)
1	31	bedridden	profound	+	polymenorrhea, vomiting	well-controlled menstrual cycle D&D	9

2	17	bedridden	profound	+	hypertonia	reduction of the symptoms	23
3	31	bedridden	profound	+	status epileptics, seizure	shortening of menstrual period D&D	8
4	17	bedridden	profound	+	fever, tachycardia, flushing on face, nausea, vomiting	D&D	48
5	28	sitting	severe	-	pelvic pain	D&D	39

Table 2: Case profile. D&D: Decrease in or Disappearance of Menstrual signs and Symptoms.

Oral contraceptives are listed in The Guidelines for Office Gynecology edited by Japan Society of Obstetrics and Gynecology and Japan Association of Obstetricians and Gynecologists in 2011 [16] as the first treatment option for dysmenorrhea. Moreover, oral contraceptives were most commonly prescribed drugs by gynecologists for menstrual symptoms [17]. The benefit of lower doses of estrogen is to reduce side effects and possibly to reduce risk of thrombosis comparing to conventional oral contraceptives.

This study revealed some significant issues that people with SMID were facing. Due to their physical limitations and difficulty in communication, diagnosing and treating these people are hard challenge to many physicians. For study of people with SMID, a commonly used guideline may be difficult to apply and may mislead the results. For this reason we treated our patients with modified methods referring the established guidelines described above. Small number of the subjects is another limitation that this study has, but increasing the number of similar cases are expected and further research on this topic will definitely help patients with SMID in the future.

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