

Effectiveness of Magnesium Pidolate in the prophylactic treatment of primary dysmenorrhea

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Summary: To evaluate Magnesium (Mg) effectiveness in the treatment of primary dysmenorrhea, 30 volunteer dysmenorrheic women of mean age 22.6 years were selected from the outpatients of the Dept. of Obstetrics and Gynaecology of the University of Parma during the period January-December 1989.

Patients affected by secondary dysmenorrhea were excluded from the trial. The women considered were asked to self-evaluate their menstrual pain for 6 subsequent cycles using the VAS (Visual Analogue Scale). In the first cycle, as control, no drug was administered; in the following ones, every woman was given 4.5 mg oral Mg Pidolate in 3 administrations daily, from the 7th day preceding the onset of menses till the 3rd day of menstruation. Data were statistically analyzed. In Mg-treated cycles compared with the control one, first day dysmenorrhea progressively decreased, with a significant drop ($p < 0.05$) from the 1st to the 6th cycle.

A similar trend, but not statistically significant, was seen for the 2nd and 3rd day of cycle. No side effect was remarked. These data suggest Mg administration to be a reliable therapy of primary dysmenorrhea.

Key words: Primary dysmenorrhea; Magnesium Pidolate treatment.

INTRODUCTION

As previously reported by several Authors (^{2, 9}), 50-60% of 15 to 40 year-old women are affected by primary dysmenorrhea. Owing to the severity of symptoms, discomfort lasting one or more days occurs in 30% of cases. Even though the etiology of this disease is still unclear, recent researchers have detected a rise in the basal tones (> 30 mmHg), in the width (> 150 mmHg) and in the fre-

quency (5 in 10 minutes) of uterine contractions on the first day of menstruation (^{3, 5}). During the subsequent days, these phenomena noticeably decrease, possibly because of the increased PgF levels, which could induce a rise in intracellular Calcium (^{4, 10}).

Following the direct vasoconstrictive action of endometrial Prostaglandins, a uterine hypercontractility occurs with subsequent arteriolar compression, ischaemia and hypoxia of the uterine muscle. Finally, hypoxia gives rise to pain (^{1, 9}).

Up to now, the most frequent therapeutic approaches have been spasmolytic drugs, which yield low effectiveness, and inhibitors of Prostaglandin synthesis

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(ANS), which are more effective but produce several side-effects, mostly gastrointestinal ones (7).

Recently several Authors (6) have stressed the lack of Magnesium (Mg) as a possible etiopathogenetic factor in primary dysmenorrhea. In fact, the lack of Mg could enhance Prostaglandin action, leading to hypercontractility, ischemia and, subsequently, pain. Therefore, Mg supplementation could balance the PgF ratio, increasing Prostacyclin synthesis too. Furthermore, the Mg ion is a physiological antagonist of Calcium ion, with competitive effects on the muscular contraction.

It also acts as an arteriolar vasodilator and a cholinesterase coenzyme (8). Because of the above mentioned effects, Mg ion could modulate the pathogenetic mechanism leading to primary dysmenorrhea. The aim of the present research was to evaluate the effectiveness of Mg as a treatment for menstrual pain. For this purpose, the Authors administered Mg Pidolate, in which Pidolic acid supports the cell penetration of Mg ion, to 30 female volunteers whose informed consent had been previously obtained.

MATERIALS AND METHODS

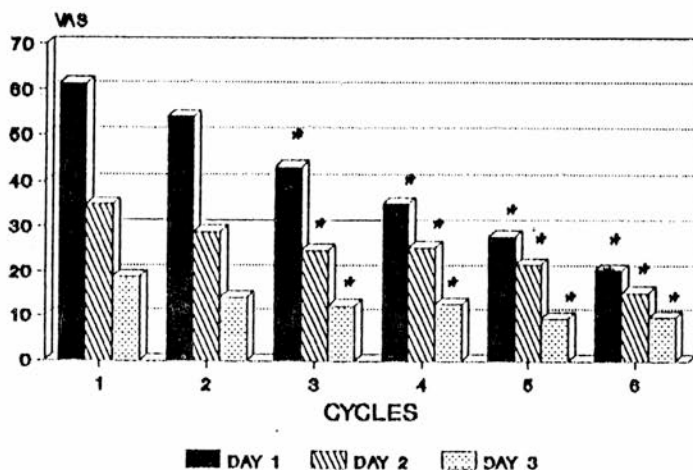
To evaluate the effectiveness and tolerability of Mg Pidolate as a treatment for primary dysmenorrhea, the Authors considered 30 young women, who were selected among the out-patients of the Dept. of Obstetrics and Gynaecology of the University of Parma during the period of January-December 1989. They were of average age 22.6 years (17-26) with menarche occurring at average age 12; they menstruated regularly with a 28.8 day menstrual cycle. For 7.7 years, on average, they had suffered from severe dysmenorrhea requiring abstention from everyday activities on the first day of menses.

Patients with a personal history or clinical detection of disease possibly related to secondary dysmenorrhea (endometriosis, congenital malformation of the Müllerian System, ovarian cysts, pelvic phlogosis, infections) were excluded from the trial.

Oral contraceptive users and patients treated with drugs interfering with absorption, metabolism and elimination of Mg were also excluded. 18 of the women considered suffered from menstrual pain during the first menstruating day only, while in the remaining 12 patients dysmenorrhea lasted till the 2nd or 3rd day of the cycle.

All the patients were studied for six subsequent menstrual cycles.

They were required to evaluate their own menstrual pain once a day on the 1st 3 days of menses, using the VAS, the visual analogous



** $p < 0.05$. (Dunnet Test).

Fig. 1. — Magnesium Pidolate in the treatment of primary dysmenorrhea.

Table 1. - Patient's features.

N.	Age	Menarche Age	Dysmenorrhea Beginning Age	Cycle Length	Flow Length
1	23	9	12	28	5
2	22	13	6	28	6
3	23	11	8	25	6
4	26	13	5	26	5
5	25	13	9	31	6
6	23	12	6	28	4
7	20	13	0	30	5
8	22	13	1	29	6
9	24	12	5	28	4
10	23	10	13	30	5
11	25	12	13	28	4
12	25	13	12	28	5
13	21	13	5	30	5
14	21	12	5	30	5
15	22	13	6	28	5
16	25	12	7	25	6
17	25	10	6	28	5
18	21	11	9	33	7
19	23	12	7	28	7
20	20	12	8	31	7
21	25	12	13	29	4
22	21	13	7	30	6
23	25	11	14	28	5
24	22	13	1	28	5
25	17	13	4	29	7
26	24	11	12	31	7
27	20	11	9	31	6
28	21	12	7	30	6
29	19	13	6	26	3
30	25	11	9	29	5

scale, a graph consisting of a 10 cm straight line, signifying the intensity of pain: from no pain on the left end up to the sharpest pain ever experienced on the right. The patients were required to mark the line according to the intensity of their pain. In the first cycle, as control, no drug was administered; during the following ones all the women were given 4.5 mg oral Mg Pidolate (Mg 2, Lyrca Synthelabo) in 3 administrations daily from the 7th day before the onset of menses till the 3rd day of menstruation.

Data were computer analyzed and statistically evaluated using Dunnet's test.

RESULTS

Compared with the control cycle, during the cycles of Mg Pidolate administration, cathamenial pain, on the first day of menses, progressively decreased with a significant reduction ($p < 0.05$) between the first cycle considered and the sixth one. First day dysmenorrhea showed a progressive drop of 11.7%, 29.6%, 42.7% etc. in the 2nd, 3rd, 4th, etc. cycles respectively (Table 1).

A similar, but not so marked, decrease was found on the 2nd and 3rd day of menstruation, possibly because of the spontaneous lowering of dysmenorrhea in this period of the cycle.

Furthermore, fewer young women usually suffer from menstrual pains after the first day of menstruation. In fact, the main release of endometrial Prostaglandins occurs within 24 hours from onset of menstrual flow. During Mg Pidolate intake, no side effect was reported by the women studied.

DISCUSSION

According to the data reported, oral Mg supplementation, especially when prolonged, proves to be an effective and reliable therapy for primary dysmenorrhea. When a long-range Mg administration is scheduled, an almost complete relief of symptoms can be achieved, with no side-effects. Even though wider clinical trials are required in order to fully reveal the therapeutic properties of this ion, Mg administration can be considered a suitable treatment for primary dysmenorrhea, and especially in such cases which contraindicate the use of NSAIDs (intolerance, peptic ulcer, salicylate-induced asthma).

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