Comparing the effect of vitamin B1 (vit. B1) and ibuberofen on the treatment of primary dysmenorrhea

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Primary dysmenorrhea refers to painful contractions of menses which are without organic complications and its incidence is about 80%. The purpose of this study is to compare the effect of vitamin B1 (vit. B1) and ibuberofen on the treatment of primary dysmenorrhea. This clinical trial study was done on medicine students of Islamic Azad University, Sari branch, in 2010. One hundred and fifty-two students that had moderate and severe dysmenorrhea were sited in two groups randomly. The first group (76 girls) received 100 mg/day vit. B1 in the luteal phase and the second group received 400 mg ibuberofen when their pain started (duration of this study was 2 months). After data collection, data analysis was done by SPSS version software and we used chi-square tests, t-test, Mann-Whitney and Friedman tests ($\alpha = 0.05$). There was significant difference between intensity and duration of pain before and after treatment by ibuberofen ($p = 0.000$) and vit. B1 ($p = 0.000$). Furthermore, there was no difference between the intensity of pain after intervention in the two groups in the first month ($p = 0.414$), but there was difference in the second ($p = 0.000$) and third ($p = 0.000$) months. Also, there was no difference between the two groups about needing more drugs to reduce the pain ($p = 0.401$). The effect of vit. B1 and ibuberofen are similar, but vit. B1 has less complications and it is more accepted and used in treatment of primary dysmenorrhea.

Key words: Primary dysmenorrhea, Ibuberofen, vitamin B1 (vit. B1).

INTRODUCTION

Dysmenorrhea refers to painful contractions of menses which happens at the beginning of bleeding or a little before the start of menses. It was observed that about 80% of women experienced it in turns during pregnancy. Most of the contractions are not severe, but in 10% of the cases, it can cause the person to stop working during daily activities and this may bring financial and social disadvantages (Juli and Jolin, 2003). Dysmenorrhea is divided in two groups: (1) Primary dysmenorrhea which occurs without any organic complications in menses time and is mostly seen in young girls; and (2) secondary dysmenorrhea, which do not always happen at the beginning of the menses, but occurs in subsequent years with pelvic or non-pelvic organic complications, and has fewer incidences than primary dysmenorrhea. From the view of primary dysmenorrhea, the secretion of prostaglandins in ovulation time can make the uterine wall to be contracted and skimmy, as as well as painful (Leon and Robert, 1999; Akin and Weingand, 2001). General incidence of primary dysmenorrhea has been reported to be between 40 and 95% in west countries and 70 to 86% in Iran. Furthermore, about 13% of general population in Iran are young girls, this figure demonstrates high incidence of dysmenorrhea in our country. Dysmenorrhea causes economical damages, unfavorable influence on spirit of the patient, severe anxiety at menses duration and even causes severe pains in time of delivery. Primary dysmenorrhea can alter the quality of a young girl's life that is great and a source of wealth to the society. For treatment of primary dysmenorrhea, various methods have so far been suggested. Anti-pains like aspirin and astaminofen (Jida, 1999; Regidor et al., 2001), non-steroidal anti-inflammatory like ibuberofen, naproxen and mfenamic acid (Morrison et al., 1999; Chang and Liwan, 1998), oral contraceptive pill and cervix dilation in severe levels (Regidor et al., 2001; Bernard and Scillia, 2000), and the use of IUDs that have progestin have been suggested (Bernard and

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METHODS

Preparation of plant extracts

Inclusive criteria in this study include: age (18 to 22 years), being single (not married), having regular menses (between 26 and 30 days), having primary menses pain in most cycles for 6 recent months, and moderate and severe pain according to speech multidimensional standard criterion. Exclusive criteria include: allergy to non-steroidal anti-inflammatory drugs, using medical and non medical methods for tranquilizing pain, special diet (hydrotherapy, herbo-vorous, eating raw food, etc.), doing exercise regularly and attending professional classes (sport classes, classes for physical preparation, etc.), performing relaxation techniques in 6 recent months, existence of any kind of physical and mental disease and any kind of genital system disease, having a background on abdominal or pelvic surgery, smoking, drinking alcohol, taking hormonc drugs and oral contraceptive pills, and severe mental tensions during research (Rakhshai, 2004; Jafari, 2004).

Experimental groups

Among 500 students of Nursing and midwifery Faculty, 152 girls who suffer from moderate and severe form of primary dysmenorhea were selected randomly and were cited in two groups (76 girls each).
Table 1. Comparison of frequency, relative frequency, average and standard deviation of menses pain intensity before and after receiving vitamin B1 separately in first, second and third months.

<table>
<thead>
<tr>
<th>Group</th>
<th>Pain intensity</th>
<th>Before use</th>
<th>After use (1st month)</th>
<th>After use (2nd month)</th>
<th>After use (3rd month)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
<td>Frequency</td>
<td>Percent</td>
<td>Frequency</td>
</tr>
<tr>
<td>Very low</td>
<td>0</td>
<td>0</td>
<td>16</td>
<td>21.1</td>
<td>43</td>
</tr>
<tr>
<td>How</td>
<td>0</td>
<td>0</td>
<td>24</td>
<td>31.6</td>
<td>15</td>
</tr>
<tr>
<td>Moderate</td>
<td>45</td>
<td>59.2</td>
<td>30</td>
<td>39.5</td>
<td>18</td>
</tr>
<tr>
<td>Sever</td>
<td>31</td>
<td>40.8</td>
<td>6</td>
<td>7.9</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>76</td>
<td>100</td>
<td>76</td>
<td>100</td>
<td>76</td>
</tr>
<tr>
<td>Average</td>
<td>2.41</td>
<td></td>
<td>1.34</td>
<td></td>
<td>0.67</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>495/0</td>
<td>903/0</td>
<td>0.839</td>
<td>0.717</td>
<td>0.000</td>
</tr>
<tr>
<td>P value</td>
<td>0.000</td>
<td></td>
<td>0.000</td>
<td></td>
<td>0.000</td>
</tr>
</tbody>
</table>

Table 2. Comparison of frequency, relative f, average and standard deviation of menses pain intensity before and after receiving Ibuberofen separately in 1st, 2nd and 3rd months.

<table>
<thead>
<tr>
<th>Group</th>
<th>Pain intensity</th>
<th>Before use</th>
<th>After use (1st month)</th>
<th>After use (2nd month)</th>
<th>After use (3rd month)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
<td>Frequency</td>
<td>Percent</td>
<td>Frequency</td>
</tr>
<tr>
<td>Very low</td>
<td>0</td>
<td>0</td>
<td>12</td>
<td>15.8</td>
<td>14</td>
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<tr>
<td>Low</td>
<td>0</td>
<td>0</td>
<td>36</td>
<td>47.4</td>
<td>37</td>
</tr>
<tr>
<td>Moderate</td>
<td>46</td>
<td>60.5</td>
<td>26</td>
<td>34.2</td>
<td>25</td>
</tr>
<tr>
<td>Sever</td>
<td>30</td>
<td>39.5</td>
<td>2</td>
<td>2.6</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>76</td>
<td>100</td>
<td>76</td>
<td>100</td>
<td>76</td>
</tr>
<tr>
<td>Average</td>
<td>2.39</td>
<td></td>
<td>1.24</td>
<td></td>
<td>1.14</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>0.492</td>
<td>0.746</td>
<td>0.706</td>
<td>0.734</td>
<td></td>
</tr>
<tr>
<td>P value</td>
<td>0</td>
<td></td>
<td>0</td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

RESULTS

General observations

All 152 patients who suffered dysmenorhea and were studied in two groups, did not demonstrate any meaningful statistical difference in view of age average (20.14 in vitamin B1 group and 20.13 in ibuberofen group with standard deviation of 1.2 and 1.5) (p = 0.977), mean age average (12.61 in vitamin B1 group and 12.69 in ibuberofen group and standard deviation of 1.03 and 1.09) (p = 0.621), age that dysmenorhea starts (14.2 in vitamin B1 group and 14.7 in ibuberofen group and standard deviation of 1.1 and 1.2) (p = 0.669), average of bleeding duration before intervention (6.6 in vitamin B1 group and 6.5 in ibuberofen group and standard deviation of 1.1 and 1.1) (p = 0.464), average of pain intensity before intervention (2.4 in vitamin B1 group and 2.3 in ibuberofen group and standard deviation of 0.59 and 0.49) (p = 0.869), average of menses pain duration before intervention (36.5 in vitamin B1 group and 36.3 in ibuberofen group and standard deviation of 0.6 and 0.9) (p = 0.140).

Severe and duration of pain before and after treatment

There were differences between vitamin B1 receiving group and ibuberofen receiving group about pain intensity before and after intervention (Tables 1 and 2). On the other hand, in the performance study, there was no difference between the two groups after intervention in view of pain intensity in first month (p = 0.414), but there was meaningful difference between them in the second (p = 0.000) and third months (p = 0.000). About pain duration before and after receiving vitamin B1 (p = 0.000) and ibuberofen (p = 0.000) in the first, second and third months, there were meaningful differences. Furthermore, statistical difference between the two groups after intervention was p = 0.000.

Also, there was no difference between two groups about need to more drug (p = 0.827) and amount of samples' satisfaction (p = 0.401). About complications resulting from drug use in vitamin B1 receiving group, 2 girls (2.6%) got palpitation and 3 girls (3.9%) got malaise and for the remaining 71 girls (93.4%), no complication
DISCUSSION

On the effect of vitamin B1 on menses pain intensity, result of this study demonstrated that there was difference on pain intensity before and after receiving vitamin B1 (p = 0.000) and complete recovery percent in the first month was 21.1%, in the second month, it was 56.6% and in the third month, it was 71.1%. In previous study by Jafari (2005), recovery percent in the first month was 20%, in the second month, it was 55.6% and in the third month, it was 84.4%; but in this study, there was no comparison with Ibuberofen (Jafari, 2005). Also, Gokhol (1996) study shows complete recovery, 18.8% in the first month, 57.6% in the second month and 87% in third month; this is similar to the present study results. In India in 1996, a similar study was done. In this study, 556 women suffering from primary dysmenorhea received vitamin B1. Although 87% of them recovered, no comparison was done with any other drug (Gokhol, 1996). In 1999, 106 women who suffered from primary dysmenorhea received 100 mg/day vitamin B1 constantly during 6 months and it was recorded that 80% of them recovered (Drews and Coco, 1999). In comparing pain intensity before and after receiving ibuberofen (15.8%), it was observed that in the second month, pain intensity was 18.4% and in the third month, it was 22.4%. In a performed study by sekhatav (2005), recovery percent after receiving ibuberofen was 88.4% which is more than recovery percent at present study (Sekhavat, 2005). Reason for this difference was the method of drug used in Sekhavat (2005) study. In his study, ibuberofen was prescribed 3 times a day and 5 days a month (three days before menses and two days after menses), but in other studies, which have similar methods of drug usage with the present study, similar results were reported.

In a performed study by Wilkinson (2000), vitamin B1 was effective in treatment of primary dysmenorhea but recovery percent was not mentioned (Wilkinson and Harger, 2000). In 2001, Ziaeai compared the effect of using 500 mg/day vitamin E during 5 days (3 days before and 2 days after menses started) with 100 mg/day vitamin B1 during 15 days before menses and observed 82% recovery after receiving vitamin B1 and 51% recovery after receiving vitamin E (Ziaeai, 2001). In 2002, they compared the treatment effect of vitamin B1 with the medicine’s pressure, and it was found that vitamin B1 made a recovery of 79% (Poor esmall and Ibrahimzadeh, 2002). By comparing the present study’s results with other studies, we can say that the treatment effect of vitamin B1 and ibuberofen is similar, while complications of vitamin B1 are very low or rather are zero; but the complications of ibuberofen are very high and sometimes they cause the patient to stop taking the drug. Also, this study shows that by taking less dose and less duration (just use in luteal phase), patients can receive same effect. About comparison of pain intensity in the two groups after intervention, there was no difference in the first month (p = 0.414) but in the second and third months after treatment, there was difference (p = 0.000). So, recovery percent in first month in vitamin B1 group was 21.1 and in ibuberofen group, it was 15.8% and in the second and third months in vitamin B1 group, recovery percent was 56 and 71 and in ibuberofen group, it was 18.4 and 22.4%. We can conclude that pain intensity and recovery percent in vitamin B1 group were much more compared to ibuberofen group. In a study by Rakhsahi (2004), titled "comparison of pain intensity after intervention in relaxation group and ibuberofen group", it was reported that in the first month, p = 0.124 and in the second month, p = 0.703. Consequently, there was no meaningful difference between the result of Rakhsahi (2004) study and that of this study, in that, a comparison of ibuberofen with tranquility was done during 2 months in Rakhsahi’s study (2004). In comparison of pain duration in vitamin B1 group before and after treatment, there was statistical difference (p = 0.000) and in Jafari (2004), there was difference as well (p = 0.000). When comparing pain duration in ibuberofen group before and after treatment, there was difference (p = 0.000) in the result of this study with that of Rakhsahi (2004) study (p = 0.00) and Sekhavat (2005) study (p = 0.00). Comparison of pain duration after intervention in the two groups demonstrated meaningful difference (p = 0.00) that is similar to the studies of Sekhavat (2005), Ziaei (2001) and Wilson (2001). There was no difference between the two groups about the need for more drugs (p = 0.827). More so, it was seen that there was no difference in the study of Rakhsahi (2004) with p = 0.464, as well. Also, in Jafari (2004) study, more drugs were needed after treatment reduced significantly; but in Jafari (2004), no comparison was done with ibuberofen. Furthermore, there was no difference between the two groups on the amount of satisfaction (p = 0.401). This was similar to the studies of Rakhsahi (2004), Jafari (2005), Sekhavat (2005), Ziaeai (2001) and Wilson (2001).

Conclusion

Vitamin B1 is a drug with low complications, it has high acceptance and endurance and is effective on treatment of patients who suffer from primary dysmenorhea and it can be substituted with non-steroid anti-inflammatory drugs which has high complication.

Also, we recommend that some other researches should be performed by prescribing various doses of vitamins in all cycle length.
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