Low Level Laser Therapy in the Relief of Primary Dysmenorrhea

1Elham Saffarieh and 2Ramin Pazoki

1Research center of abnormal uterine bleeding, Department of Obstetrics & Gynecology, Semnan University of Medical Sciences, Semnan, Iran.  
2Education Development Center (EDC), Semnan University of Medical Sciences, Semnan, Iran.

ABSTRACT

Introduction: Dysmenorrhea is a common gynecologic disorder that experienced by about 60% of women in menstruation period, and have been classified in primary and secondary type. The aim of this study was to investigate the effects of low level laser therapy in the treatment of primary dysmenorrhea. Material and methods: The current study was conducted and formulated using published articles about effects of Low Level Laser Therapy in treatment and control of dysmenorrhea, and also studies on the treatment of dysmenorrhea with laser acupuncture. Result & Discussion: There are many research studies which confirm the effects of acupuncture in reducing dysmenorrhea pain. These points can be stimulated by electricity and or laser in addition to needle. Conclusion: Studies clinical trial is needed to determine the required dose of low level laser therapy in the treatment of dysmenorrhea, which is recommended for the best proposal.

INTRODUCTION

Dysmenorrhea is a common gynecologic disorder that experienced by about 60% of women in menstruation period, and have been classified in primary and secondary type. Primary dysmenorrhea usually happen in younger age but sometimes remain until 50 years old. It will appear 1-2 years after onset of menarche (first menstruation) [1].

It’s happened due to excessive or imbalanced secretion of Prostanoids form endometrium during menstruation. Prostanoids increased contractions with dysrhythmic pattern, increased basal tone and increased active pressure. Uterine hypercontractility, reduced uterine blood flow, and increased peripheral nerve hypersensitivity are effective in inducing pain [1]. Bronchial, intestinal, and vasomotor contraction could be stimulated by pgF2α and pGE2, which in turn lead to bronchospasm, nausea, vomiting, diarrhea, and high blood pressure [2]. The primary dysmenorrhea begins few hours before or concurrent with onset of menstrual period and may last 48-72 hours [1, 3, 4].

Patients experience suprapubic and lumbosacral cramps that alleviated with pressure of palm or body movement [1]. Pharmacological treatment includes NSAIDS and combined hormonal contraceptives. Non-pharmacological treatments includes heat pack, acupuncture, transcutaneous electrical nerve stimulation TENS. Presacral neurectomy and hysterectomy would be used in rare cases [1].

Acupuncture is a part of Oriental medicine, which is widely used in Japan and China; it is imported to other countries as an alternative treatment. Acupuncture involves the insertion of extremely thin needles into specific points of the body, which can perform different treatments. There are invisible networks in the Chinese acupuncture, which connect body surface with the internal organs, and stimulation of these superficial points could provide the capability of changing different organ’s recovery.

There are many research studies which confirm the effects of acupuncture in reducing dysmenorrhea pain. These points can be stimulated by electricity and or laser in addition to needle.

LLLT is effective in the treatment of acute pain [5] and it is results in pain reduction in the short term through alleviating the inflammation [6]. LLLT is an effective method in the treatment of dysmenorrhea in

Corresponding Author: Ramin Pazoki, Education Development Center (EDC), Semnan University of Medical Sciences, Semnan, Iran
E-mail: ar20935@gmail.com
comparision with other modalities [6]. LLLT reduces the production of prostaglandin E and F, consequences of accumulation of superoxide dismutase, which acts as an inhibitor in the production of prostaglandins [7-9].

LLLT also stimulates the production of endorphins [10], and inhibition of the synthesis of prostaglandin synthetase [11, 12].

Thabet co-workers (2009) conducted a study on the effects of LLLT and exercise on reducing primary dysmenorrhea pain. Their sample was consisted of 30 girls with primary dysmenorrhea. They were used Gallium-arsenide laser with a wavelength of 635-670 nm and a 5 mv (power). McGill Pain Questionnaire (MPQ) have been completed before and after treatment. They have checked the serum cortisol levels before study and after 3 month.

The treatment course was three months, laser were used in day before and the first and second days of menstruation period. They have applied 3 shot on suprapubic region each 60 second; and paravertebral region in prone position and also L4-S3 region, 60 second per shot. It was clear that pain levels was reduced, and 23 individual (76.67%) were completely relieved [13].

Another research was conducted by Shin and colleagues in Korea, 2012 as pilot study. They have investigated 31 women suffering from primary dysmenorrhea in a double-blind randomized study. From the sample, 21 women were received LLLT and remaining samples received a placebo. In a 5 days course and before onset of monthly menstruation period, the have been underwent LLLT for 20 minutes daily. The pain intensity have been measured by visual analog scale (VAS), which applied monthly and for 6 consecutive months. From the study sample, 16 women were reported satisfying results in the first month, and 5 women were benefited from second cycle of LLLT and experienced pain reduction. Pain was reduced in 83% of patients. They stimulated acupuncture points with LLLT [14]. The desired points were Conception vessel4(CV4;Guanyuan) and CV6(Qihai) in this study. They have been stimulating this two points in three cycle in their main study.

Kempf and colleagues (2009) conducted another double-blind study. The performed acupuncture with laser, which have not had the pain of regular acupuncture. Laser have better performance than placebo in treating dysmenorrhea.

They have stimulated 8 acupuncture point (SP6-LV3-LI4) bilaterally, and (CV3-ST36) on the right side of body using laser beam for 20 minutes in three menstrual cycles. The pain score was evaluated with VAS scale, in which, the pain reduction was obvious in the laser group.

48 women were studied, results shown that despite reduction of pain in group receiving laser treatment, there was not any significant differences between two groups [15].

In another double-blind study in Harvard, 35 women was treated with traditional acupuncture for dysmenorrhea, control group was consisted of 61 women. The results were slightly differ in the group receiving acupuncture.

Results of 27 similar studies on 20960 patients have shown that acupuncture have had better results than chemical or herbal drugs.

In another 6 study which involved 673 women and 4 studies on 271 women, the pain have been better controlled in the acupuncture group. There was differences in the strength and weakness in different regions.

MATERIAL AND METHODS

The current study was conducted and formulated using published articles about effects of Low Level Laser Therapy in treatment and control of dysmenorrhea, and also studies on the treatment of dysmenorrhea with laser acupuncture.

RESULT & DISCUSSION

Laser shown a good effects in treatment of dysmenorrhea pain along exercise in an study conducted in Korea in 2009 about LLLT. The dysmenorrhea pain have been reduced in 3 month period of using LLLT in a day before and two days after mense. They performed exercise alongside of LLLT therapy, in which, we couldn’t distinguish and argue that 76.67% reduction of pain was completely due to laser application [13].

In 2012 study by Shin, they have used laser instead of needle for acupuncture, in which, the pilot study shown about 83% of pain reduction. The have almost shown that when acupuncture points were stimulated by needle, we could also stimulate them with laser without needle insertion pain, and with good results [14].

In other hand, there are conflicting results too. Especially Kempf and colleagues study in 2009 that used laser needle acupuncture. Although they have used different acupuncture points. VAS scores shown pain reduction, but the difference was not statistically significant [15].

Traditional oriental acupuncture using needle have been studied extensively and with large samples, in which, they have had different effects on pain control; however, oriental acupuncture is suitable for treatment of dysmenorrhea and can be used as an alternative treatment.
However, application of laser needle instead of traditional needle would require extensive future work in order to show its effectiveness in replacing needle and showing its effectiveness in pain control and recommendation of it as alternative treatment.

**Conclusion:**

There are not strong documents for supporting the application of laser needle acupuncture in the treatment of dysmenorrhea pain, and if we want to recommend it as complement treatment along drug therapy in pain control, much more studies and clinical trial will be required for such suggestion.

**REFERENCES**