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GENERAL GYNECOLOGY

Skin adhesive low-level light therapy for dysmenorrhoea: a randomized, double-blind, placebo-controlled, pilot trial

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Abstract
Purpose The cause of dysmenorrhoea is an abnormal function of smooth muscles in the uterus due to long-term deficient blood supply into smooth muscle tissue. The purpose of this study was to evaluate the effectiveness of skin adhesive low-level light therapy (LLLT) in participants with dysmenorrhoea.
Methods Thirty-one women were included in this randomized, double-blind, placebo-controlled, pilot trial. Twenty-one women were treated with active LLLT and ten women were treated with placebo one. The therapy was performed in a laboratory room for 20 min a day over a period of 5 days prior to the expected onset of menstruation. The outcome was measured using a visual analog scale (VAS) for each participant's dysmenorrhoeal pain severity. VAS of each subject was measured every month for 6 months.
Results In the active LLLT group, 16 women reported successful results during their first menstrual cycle just after active LLLT and 5 women had successful results from the second menstrual cycle after active LLLT. The pain reduction rate was 83 % in the active LLLT group, whereas there was only a slight and temporary reduction in pain in the placebo LLLT group. Changes of VAS within 6 months of LLLT showed statistical significance ($p = 0.001$) over placebo control.
Conclusions Our study suggests that skin adhesive LLLT on acupuncture points might be an effective, simple and safe non-pharmacological treatment for dysmenorrhoea.

Keywords Low-level light therapy · Dysmenorrhoea · Acupuncture point · Smooth muscle relaxation

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Introduction

Dysmenorrhoea is a menstrual condition characterized by severe and frequent menstrual cramps and pain associated with menstruation. Dysmenorrhoea is the most common gynaecologic disorder among female adolescents, with a prevalence of 60–89.5 % [1, 2]. Common dysmenorrhoea symptoms are tension, irritability, depression, anxiety, bloating, abdominal cramps, breast tenderness, joint pain and headache [3, 4]. Dysmenorrhoea causes poor quality of life, the need for medical treatment and absence from school or work. Some previous studies have shown that women with dysmenorrhoea had reduced work productivity and more interference with normal daily tasks and a greater number of workdays missed for health reasons [5].

Even though dysmenorrhoea has been well defined, the cause of dysmenorrhoea has not yet been well elucidated. Dysmenorrhoea is closely associated with a dyscontractility