SHORTWAVE DIATHERMY IN THE MANAGEMENT OF CHRONIC PELVIC INFLAMMATORY DISEASE PAIN: CASE REPORTS

S . LAMINA

B.Sc. (PT), M.Sc. (Ed), Lecturer/ Clinician, Department of Physiotherapy,Faculty of Medical Sciences, Jimma University, Jimma, Ethiopia. E-mail: siklam_86@yahoo.co.uk

S . HANIF

B.Sc. (PT), M. Sc. (Ed), Lecturer, Department of Physiotherapy, Faculty of Medicine, Bayero University,Kano, Nigeria. E-mail : shelliehanif@hotmail.com

Corresponding Author: Lamina, S.

ABSTRACT

The purpose of this case study was to determine the therapeutic effect of Short Wave Diathermy (SWD) in the symptomatic management of chronic Pelvic Inflammatory Disease (PID) pain. Three cases of chronic PID were referred from the Obstetric and Gynaecology department of Murtala Muhammed Specialist Hospital (MMSH) and a Private Gynaecology Hospital in Kano, Nigeria, for Physiotherapy. SWD was administered to 2 of the patients using the cross-fire technique for an average of 15 exposures for 30 minutes on alternate days, while the third patient did not received SWD, but was on antibiotics and analgesic. The study lasted for one month.

Two patients that received SWD had their pain reduced from an average of 6.5 to zero on the Visual Analogue Scale (VAS) and still remain at zero without any medication at 4 months follow up assessment. The third patients who received no SWD had her pain reduced from 6 to 4 and on follow up, slightly reduced to 3 while still on medications. It was concluded that SWD is effective in the symptomatic management of chronic pain in PID.

Keywords: Chronic Pelvic Inflammatory Disease, Short Wave Diathermy, Pain

INTRODUCTION

Pelvic inflammatory disease (PID) is an infection of the upper genital tract in women that can include endometritis, parametritis, salpingitis, oophoritis, tubo-ovarian abscess, and peritonitis. The spectrum of disease ranges from subclinical, asymptomatic infection to severe, life-threatening illness; sequelae include chronic pelvic pain, ectopic pregnancy, and infertility [1].

Symptoms of PID include lower abdominal pain, dyspareunia, fever, back pain, and vomiting, as well as symptoms of lower genital tract infection such as abnormal vaginal discharge or bleeding, itching, and odor. In some women, symptoms are mild or even absent. Chronic PID refers to both residue of acute and sub-acute recurrence of a previous infection and as a result of late dictection of and intervention for upper tract pelvic infection. Chronic PID presents a diagnostic and management challenge to health care providers [1,2].

It is widely known that shortwave diathermy (SW) can be used to reduce pain and swelling, accelerate the inflammatory process, and promote healing in tissues with chronic inflammation [3-5].Application of SW diathermy to the involved tissues may increase vascular circulation, including white blood cells and change tissue temperature, which directly results in vascular dilatation, an increase in pain threshold, and a decrease in pain and swelling [6, 7]. Such vascular improvement also encourages resolution of the inflammatory processes by increasing nutrition and oxygen supply and by removing metabolic and waste products [3-5] .This in turn promotes natural resistance to infection [8, 9].

Owing to the chronic nature of the disease, large doses of analgesics and their side effects on the body, there is a need for a none invasive therapeutic and symptomatic chronic pain management. However, studies investigating the efficacy of alternative to analgesics are very few. Therefore, the purpose of this study was to investigate the efficacy of SWD in the symptomatic management of chronic PID pain.

CASE REPORTS

Patients' Clinical History

Patient A: A 30 year old P_3^{+1} was referred as a case of chronic PID for physiotherapy from the obstetric and gynaecology department of Murtala Mohammad Specialist Hospital (MMSH), Kano (MMSH). Patient complained of irregular menses, lower abdominal pain radiating to the lower back, offensive vaginal discharge and inability to conceive (secondary infertility) since she had miscarriage 4 years ago. The patient has been on drugs (series of antibiotics and analgesics) all to no avail.

Patient B: A 28 year old female was referred from a private gynaecologist with a diagnosis of primary infertility secondary to chronic PID with 5 years history. Patient complained of chronic episodic lower abdominal pain, irregular and profuse menstruation, smelly vaginal discharge and serious dyspareunia. Patient has been on medication (antibiotics and analgesics) for a very long time all to no avail.

Patient C: A 32 year old female mother of 2 children though not referred but was monitored from the gynaecogy unit of MMSH with a diagnosis of chronic PID of 2 years history. Patient complained of chronic lower abdominal pain, irregular menstruation, blood stained smelly vaginal discharge and serious dyspareunia.

EXAMINATION AND EVALUATION

Visual analog scale.

Pain index assessment for lower abdominal and pelvic pain was conducted using the visual analog scale(VAS) [10-13] . It is an ordinal scale, using a 10-cm line divided into 10 equal sections, with 0 representing "no pain" and 10 representing "unbearable pain." Each participant was asked to indicate on the scale the level of pain in their lower abdomen or lower pelvis before and after treatment.

Patient A: Prior to treatment, laboratory investigation (endocervical swab) showed pus and blood cells, tubal potency was ascertained via HSG and ultrasonography showed no

ovarian mass or cyst. She indicated 6 on the VAS.

Patient B: Laboratory investigation showed pus cells, Hysterosalpingography (HSG) (write in full) presented tubal potency. Ultrasonography showed no ovarian mass or cyst, and the patient reported grade 7 on the VAS.

Patient C: investigation showed pus and blood cells, tubal potency was ascertained via HSG and ultrasonography showed no ovarian mass or cyst. The patient indicated 6 on VAS.

TREATMENT

Pre-treatment procedure: Both patients A and B were screened for all the contra-indications to SWD through the past medical and family social history. Both patients continued their antibiotics as prescribed by their gynaecologists. Thermal skin sensation test was carried out with two test tubes with cold and warm water. It was ascertained that sensitivity of the skin surface area of electrode placement was intact.

Treatment procedure: A continuous shortwave diathermy current was generated by the Shortwave diathermy machine (Ultratherm 608, Made in Germany by Siemens) adopting the modified crossfire technique as described by Balogun and Okonofua [4]. This involved moving electrodes to a position at right angles to their previous position half way through treatment. In this way, half of the treatment was given antero-posteriorly through the pelvis with the patients in lying position and second half with the patients in the side lying positions with their legs curled up and the electrodes placed over the pelvic outlets and the lumbo-sacral area of the spine.

Treatment intensity: An intensity that generated mild comfortable warmth was selected.

Treatment frequency: Treatment was given every two days (alternative days) for a total of 15 exposures (treatment sessions).

Treatment duration: The treatment duration was 30 minutes splits into two sessions of 15 minutes per session of the crossfire positions.

Both patients were only on antibiotics (no analgesics) during the period of investigation

Patient C continued with the medications (antibiotics & non steroidal anti-inflammatory drugs [NSAIDs]) prescribed by the gynaecologist.

Post-treatment procedure: At the end of the total treatment period and 7 days post SWD and NSAIDs treatment(wash out period), VAS was presented to the three patients to indicate their post treatment pain level. Laboratory investigation was also presented.

Patient A reported VAS of zero (no pain). Laboratory investigation showed no pus cells. The patient was discharged by the gynaecologist.

Patient B was discharged on the account of no pain (zero VAS score) and no pus cells. Patient C though reported a decrease in pain (VAS) to 4; laboratory result showed presence

of slight pus cells, but no blood cells seen.

Follow up assessment

Three months follow up assessment was conducted on all the 3 (A, B, C) patients. Patient A pain index was still at zero and the patient had conceived and at the time of writing this paper the pregnancy was still progressing normally. Patient B pain index was also at zero, while patient C pain was 3. Patient was still on antibiotics and analgesic.

DISCUSSION

The primary purpose of this study was to determine the therapeutic efficacy of SWD in the symptomatic management of chronic PID. The finding of this study supports the work of Balogun and Okonofua[4], who reported an effective use of SWD in the management of chronic PID. In their case report, 39-year-old black woman with an eight-year history of PID was treated with shortwave diathermy (SWD) using a modified "cross-fire" technique. A thermal dosage treatment lasting between 20 and 30 minutes (for each half of the cross-fire technique treatment) was administered. At the beginning of every treatment session, the patient rated her pain perception on a 10-point ratio scale. The patient received a total of nine treatments, after which she was completely pain free. They concluded that SWD may be effective in the management of pelvic infections that are unresponsive to chemotherapy.

Another similar study investigating an alternative to analgesic was conducted by Evseeva, Serov & Tkachenko [14]. Sixty three females with chronic salpingo-oophoritis participated. Fifty two patients received intensive therapy with impulse low-frequency electrostatic field (ILFEF) through abdominovaginal, while the remainig 11 patients' exposure was placebo procedures. ILFEF produced marked and long-term positive effects (up to 18 months): pain relief, reduction of vegetative anxiety, increased uterine motility, softening and better elasticity of the commissures in the regions of the uterine appendages, normalization of the circulation in the vascular bed of the small pelvis. This therapy is pathogenetically sound as it rests on changes in activity of central regulation resultant from trigger stimulation and normalization of hemodynamics in the vascular bed of the small pelvis (in 76.6%) especially in the veins in response to stimulation of the sympathetic nerves in the inflammation focus.

Significant alterations in arterial and venous circulation, primarily in the vascular bed of the small pelvis, were detected in patients with chronic salpingo-oophoritis[14].The application of SWD is associated with the dilation of arterioles and capillaries which result in an increased flow of blood to the pelvic area, making available an increased supply of oxygen and nutritive materials and also bringing in more white blood cells. The dilation of capillaries also increases the exudation of fluid into the tissues and this is followed by increased absorption which together with the increased flow of blood through the pelvic area, assists in the removal of waste products. These effects help to bring about the resolution of inflammation [4, 7,8,15]. Chronic PID is associated with chronic pelvic pain as a result of inflammatory processes in the pelvis. Resolution of the inflammation is accompanied by relief of pain; SWD assists in bringing about the resolution of inflammation and so relieving the pain in chronic PID.

Vance, Heyes and Spielhlz [16], in a case report documented the use of microwave diathermy;

similar electromagnetic,non invasive modality on a similar non infectious painful condition. A 31-year-old woman who had had primary dysmenorrhea since menarche began at age 13 years. For 18 years, she had severe monthly pain, frequently resulting in emergency department admissions and 1 to 3 days lost from work. Conventional treatments, including pain-relieving drugs, anti-inflammatory drugs, muscle relaxants, superficial heat, and oral contraceptives, had all been unsuccessful in relieving or abating the intense and debilitating pain. Microwave diathermy (45 W total powers) was administered for 20 minutes each month on the day symptoms began (usually the first day of menstruation). Over a 7-month interval, diathermy was followed by almost-immediate and long-lasting relief of symptoms. During the 7 months of treatment, the patient lost no workdays due to severe pain. The case study demonstrated the potential use of microwave diathermy as an effective treatment for women with this condition.

There is no better way of eliminating a disease condition than by removing its cause. With any symptomatic therapy, however, efficacy must be weighed with the risks involved. SWD has the advantages that it is non-invasive, non-addictive and causes no known major side effects provided the contra-indications are avoided. This study demonstrated the effectiveness of SWD in the symptomatic management of chronic PID pain.

CONCLUSION

The result of this study revealed the therapeutic efficacy of SWD in the symptomatic management of chronic pain in PID. While our findings provide a rational base for recommending SWD in the symptomatic management of chronic pain in PID over analgesic, the external validity is limited because only three subjects were studied. Further studies using larger sample sizes and a control group are needed before conclusive statements can be made on the relative symptomatic efficacy of SWD in the management of chronic pain in PID. Also studies to investigate the ant-bactericidal effects of SWD in the curative management of chronic PID are warranted.

REFERENCES

1. Crossman SH. The challenges of pelvic inflammatory disease .American Family Physician 2006; 73(5): 859 64.

2. Kottamann LM. Pelvic inflammatory disease: clinical overview. J of Obstetrics and Gynaecology and Neonatal Nursing 1995 ;24(8):759 769.

3. Haralson K. Physical modalities. In: Banwell BF, Gall V, editors. Physical Therapy Management of Arthritis.New York: NY Churchill Livingstone Inc; 1998. p. 77106.

4. Balogun JA, Okonofua FE. Management of chronic pelvic inflammatory disease with shortwave diathermy-A case report. Physical Therapy 1998; 68 (10): 1541-1545.

5. Goats GC. Continuous short-wave (radio-frequency) diathermy. British Journal of Sports Medicine 1989; 23 (2): 123-127.

6. Rennie GA, Michlovitz SL. Biophysical principles of heating and superficial heating agents. In: Michlovitz SLeditor. Thermal Agents in Rehabilitation.3rd ed. Philadelphia: FA Davis Co; 1996. p.107138

7. Hecox B. Physiological response to local heat gain or loss. In: Hecox B, Mehreteab TA, Weisberg J, editors. Physical Agents. A Comprehensive Text for Physical Therapists East Norwalk, Conn: Appleton & Lange; 1994. p.91114

8. Jan MH, Chai HM, Way CL, Lin YF, Tsai LY. Effects of repetitive short wave diathermy for reducing synovitis in patients with with knee osteoarthritis:An ultrasonographic study. Phy Ther 2006; 86(2): 236 244.

9. Tindall VR. Jeffcoate's principles of gynaecology. 5th ed. London: Butterworths; 1987.

10.Hendiani JA, Westlund KN, Lawand N. Mechanical sensation and pain thresholds in patients with chronic arthropathies. J Pain 2003; 4:203211.

11. Hoof, k. Pelvic inflammatory disease. Ther Umsch 2007; 64(7):365 8.

12. Smith KJ, Tservat J, Ness RB, Wiesenfeld HC, Roberts MS (2007). Quality of life utilities for pelvic inflammatory disease health. Sex Transm Dis Nov ; [E-pub ahead of print]

13. Gray-Swan MR, Peipet JF.Pelvic inflammatory disease in adolescents Curr Opin Ogstet Gynecol 2006; 18(5):503 -10.

14. Evseeva CL, Serov VN, Tkachenko NM. Chronic salpingo-oophoritis:clinical and physiological rationale for therapeutic application of impulse low frequency electrostatic field. Vopr Kurortol Lech Fiz Kuit 2006; (1): 21 24.

15.Haggerly CL, Ness RB. Epidemiology, pathologenesis and treatment of pelvic inflammatory disease .Expert Rev Anti Infect Ther 2006; 4(2):235 47.

16. Vance AR, Heyes SH, Spielhlz NI. Microwave diathermy treatment for dismenorrhea. Phys Their 1996; 76(9):1003-8