

Physiotherapy is A New Line in Management of Chronic Pelvic Inflammatory Diseases

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ABSTRACT

Background: Pelvic inflammatory disease (PID) is an inflammatory condition of the upper female genital tract. Chronic PID include both residue of acute and subacute attack of infection. Generally shortwave diathermy (SWD) is used to decrease pain and edema, thus improves the inflammatory reaction and accelerates the healing of the chronically inflamed tissues. **Objective:** To evaluate the therapeutic efficacy of shortwave diathermy in the management of chronic PID. **Materials and methods:** 80 patients with chronic PID for more than 6 months diagnosed by thorough history, clinical examination and cervical swabs. Patients were divided into two groups: First group (group 1): patients received both medical treatment and shortwave diathermy. Second group (group 2): patients received only medical treatment. **Results** There was a statistically highly significant improvement of clinical and laboratory manifestations in the first group of patients compared to the baseline and compared to the second group.

Conclusion shortwave diathermy has a fair therapeutic efficacy in the treatment of chronic PID.

Keywords: Pain, Pelvic Inflammatory Disease, Shortwave Diathermy.

INTRODUCTION

Pelvic inflammatory disease (PID) is defined as inflammation of the female upper genital tract. The most prominent manifestation of PID are fever, dyspareunia, pelvic pain, cervical discharge, and abnormal uterine bleeding⁽¹⁾. About 25%-50% of patients with acute PID will develop chronic pelvic pain, ectopic pregnancy and impaired fertility, usually due to scarring and adhesions^(2,3). The cornerstone of PID management is symptomatic to relieve pain and systemic malaise. Management should be also aimed at microbiological cure, prevention of the occurrence of permanent tubal damage and spread of infection to the surrounding tissues⁽⁴⁾. The shortwave diathermy is a form of radiofrequency radiation, with a frequency of 27.12 MHz, which is a high-frequency electromagnetic waves that improves pelvic circulation, thus leads to reduce edema and relieve of pain⁽⁵⁾. Vascular improvement leads to relieve the inflammatory processes by increasing oxygen supply, and removing waste products to enforce natural resistance to infection and accelerate healing of inflamed tissues⁽⁶⁾.

Aim of the present work was to assess the role of short wave diathermy in the management of chronic pelvic inflammatory diseases through comparing the therapeutic efficacy of combined (medical and short wave diathermy) therapy with medical treatment only.

PATIENTS AND METHODS

This was a prospective observational study that was conducted at Obstetrics and Gynecology Department in Menoufia University Hospitals from September 2018 till January 2020. 80 patients were included in this study, the patients were divided randomly into two groups (40 patients in each group).

-First group (group 1): patients received both medical treatment and physical treatment. (Combined therapy).

-Second group (group 2): patients received only medical treatment.

Inclusion criteria: Patients diagnosed as PID according to Centers for Disease Control and Prevention (CDC) diagnostic criteria for PID for more than 6 months by thorough history, clinical, and microbiological examination.

Exclusion criteria: Acute PID, severely ill patients, pregnancy, skin sensation defect, intrauterine device/implants, cardiac pacemaker, intolerance to electromagnetic therapy.

Methods:

Full History taking: concentrating on symptoms of PID.

Full clinical examination:

General examination: blood pressure, pulse, temperature, respiratory rate, chest, abdomen.

Local examination: Bimanual examination to confirm the criteria of PID. Cusco speculum was used to visualize the cervix, cervical discharge and cervical swabs obtained, placed in tubes of normal saline and sent for microbiological examination. Specimens were examined for presence of chlamydia and gonorrhea.

Chlamydia detection: by usage of Pap smear examination and Chlamydial antigen detection using Vidas Chlamydia Kit. The assay principle combined an immunoassay method with a final fluorescent detection enzyme linked fluorescent assay (ELFA). The Chlamydia trachomatis were seen as characteristic intracellular inclusion bodies in Pap cervical smears.

Gonorrhea detection: A direct smear for Gram staining was performed after collecting the swab specimen from the cervix. The Gram stain of a smear of endocervical secretions shows typical Gram-negative, non-motile, intracellular diplococci. The identification of N. gonorrhea rests on the isolation of an oxidase-positive, catalase-positive, Gram-negative diplococcus recovered from urogenital sites that grow on selective media, Modified Thayer Martin Medium was used. Pelvic pain assessment by the visual analogue scale (VAS).



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Physical therapy procedure

A continuous SWD current was generated by a shortwave diathermy machine (CURAPULS 970; Enraf-Nonius, The Netherlands). 7 Sessions were given every 48 hours. Each session duration was 20 min divided into two parts of 10 min per one, with intensity that generated moderate sensation of warmth.

Medical treatment: Antibiotics in the form of oral doxycycline 100 mg twice daily and metronidazole 500 mg twice daily plus 500 mg paracetamol twice daily for 14 days.

Post-treatment evaluation: At the end of the 2-week treatment the patients were assessed again for clinical and laboratory manifestation of PID.

Ethical approval:

The present study protocol was approved by the local Ethics and Research Committee at Menoufia University Hospital. Written consent was obtained from all involved participants before starting the study. The steps of the study were cleared to the patients. All data and results of the study have been documented.

Sample Size

The STATCALC feature of Epi Info™ -Version 6 software was used for calculating the sample size guided by: Power of the test=80%, Confidence level =95%, Accepted margin of error =5% Risk percent ratio =2.5%,

Expected frequency of condition =10%, Total sample accepted according to inclusion criteria =80. Calculation of the sample size was based on the results of the previous observational studies.

Statistical analysis

Recorded data were analyzed using the statistical package for social sciences, version 20.0 (SPSS Inc., Chicago, Illinois, USA). Quantitative data were expressed as mean± standard deviation (SD). Qualitative data were expressed as frequency and percentage. Independent-samples t-test of significance was used when comparing between two means. Chi-square (x²) test of significance was used in order to compare proportions between two qualitative parameters. The confidence interval was set to 95% and the margin of error accepted was set to 5%. The p-value was considered significant as the following: P-value <0.05 was considered significant. P-value <0.001 was considered as highly significant. P-value >0.05 was considered insignificant.

RESULTS

As shown in table (1) there was no significant difference among patients of the study groups regarding demographic criteria (Age, Body Mass Index (BMI) and Disease duration).

Table (1): Patients' characteristics in both groups.

Treatment	G1 (No=40)	G2 (No=40)	P-Value
	(mean±SD)	(mean±SD)	
Age	38.4±6.2	33.9±6.9	0.003 S
Disease duration (months)	9.8±1.8	8.76±1.9	0.02 S
Body Mass Index	22.92±3.2	23.12±3.20	0.078 NS

Table (2) showed that there was a highly significant improvement regarding pruritus and vaginal discharge in the first group compared to the baseline and to the other group.

Table (2): Clinical manifestations of patients Pre and post treatment in both groups.

Symptoms			G1 (N=40)		G2 (N=40)	
			No	%	No	%
Pruritus	Pre	Present	26	65	28	70
	Post	Present	3	7.5	21	52.5
		Relieved	23	75.5	7	17.5
P-value			<0.001 HS		0.108 NS	
Vaginal Discharge	Pre	Present	26	65	16	40
	Post	Present	5	12.5	12	30
		Relieved	21	52.5	4	10
P-value			<0.001 HS		0.384 NS	

Table (3) showed that there was a highly significant pain reduction according to VAS results in the first group compared to the baseline and to the other group.

Table (3): Pre and post treatment pain scores (VAS) in both groups

VAS scores	G1 (N=40)	G2 (N=40)
Pre-treatment	56.0±15.49	60.4±12.46
Post-treatment	14.0±7.07	35.6±14.07
T-test	22.25	4.65
P-value	<0.001 HS	0.052 NS

Table (4) showed that there was a highly significant reduction in the number of positive cervical swab cases for chlamydia and/or gonorrhoea in the first group compared to the baseline, and to the other group.

Table (4): Pre and post treatment number of positive cases for chlamydia and/or gonorrhoea in cervical swabs of both groups

Cervical swab	G1 (N=40)	G2 (N=40)
Pre-treatment	34	33
Post-treatment	7	18
T-test	22.66	9.34
P-value	<0.001 HS	0.001 HS

DISCUSSION

Chronic PID is presented with chronic pelvic pain as a sequel of inflammatory processes that occurred in the pelvis. Resolution of the inflammation leads to relief of pain. PID management regimens include broad spectrum antimicrobial either oral or parenteral or combination of both regimens. However, only a limited number of researches have assessed and compared these regimens with regard to eradication of infection in the pelvis or determined the incidence of long-term complications after antimicrobial regimens. The optimal treatment regimen and long-term outcome of treatment of women with PID are still unknown⁽³⁾.

The main aim of the current study was to evaluate the role of SWD as a new modality in the management of chronic PID. The current study showed highly significant improvement of clinical symptoms as pruritus, vaginal discharge, and pain evaluated by VAS in the first group of patients who received combined treatment compared to the medical only group.

The results of the present study were comparable with **Lamina et al.**⁽⁵⁾ study and **Balogun and Okonofua**⁽⁷⁾ study. They stated that SWD is an effective management of PID. They reported a significant improvement of pain and other inflammatory manifestations in the group of patients who received combined antibiotics and SWD.

This is also goes with the results of **Dalia et al.**⁽⁸⁾ study which, assessed the therapeutic efficacy of combined shortwave diathermy and medical treatment in the management of chronic PID comparing it to either therapy alone. The study results showed that the most therapeutic efficacy can be gained from combined physical and medical treatment. Also **Shoma et al.**⁽⁹⁾ study that included 70 patients divided into 2 groups. First group received SWD, antibiotics and exercise. The second group received only antibiotics and exercise. The study results showed that there was a significant improvement of pelvic pain in the first group, this improvement lasted for more than 60 days in comparison to the second group.

The present study reported a statistically highly significant reduction in the number of cases with positive cervical swab testing for chlamydia and/or gonorrhoea in the first group of patients in comparison to the other group. Chlamydia trachomatis is the major cause of cervicitis and PID. Most cases of PID are caused by either *C. trachomatis*, *Neisseria gonorrhoea*, or both. PID develops in women with inappropriately treated chlamydial or gonococcal cervicitis. The favorable symptomatic pain and associated anti-inflammatory effect of SWD in the management of PID could be explained by the vasodilator effect of SWD on arterioles and capillaries that leads to increased flow of blood to the pelvic region that increases supply of oxygen, helping removal of the waste products of the affected organs, these effects help the resolution of inflammation and provide pleasant sedative sensation in deep tissues as a result of heat radiation.

CONCLUSION

Short wave diathermy could have a favorable role in the management of chronic pelvic inflammatory diseases.

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