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ORIGINAL ARTICLE

COMPARE THE EFFECT OF IFT OVER LASER THERAPY ALONG WITH STRENTHENING EXERCISE FOR POSTPARTUM LOW BACK PAIN

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ABSTRACT

Background of the study: Postpartum back pain mostly occurs while performing activities that involve body movements, such as walking, lifting, bending, and/or carrying the new baby, and may be relieved with rest, exercise, and home treatments. The type and severity of pain depend on the underlying causes of Postpartum Back Pain. The type of delivery vaginal, instrumental, or cesarean section (C-section), breech delivery may also have a role to play in postpartum back pain. Objective of the study is to compare the effect of IFT over Laser Therapy along with strengthening exercise for Postpartum Low Back Pain. **Methodology:** It is an Experimental study with Comparative Pre and Post study type**,** sample size: are 30 Subjects (Group A and Group B) and Random sampling method used to allocate the samples in two groups. The study conducted at outpatient department, Faculty of physiotherapy, Dr. M.G.R Educational and Research Institute for duration 6 Months. Intervention Duration was Alternate days per week for the duration of 6 weeks. Outcome measures were Pain, Flexibility and Disability. Measurements tools used were NPRS for pain and Oswestry Disability Index (ODI) for Flexibility and Disability. **Results:** On comparing Pre-test and Post test within Group A& Group B on Visual Analogue Scale & 6 Minute Walk Test Score shows significant difference in the mean values at $P \leq 0.05$. **Conclusion:** On comparing the statistics analysis both treatments are efficient in post CABG patients this study concluded that LASER Therapy (Group A) and TENS (group B) along with chest physiotherapy, it's more effective and improving the functional capacity and reduce pain in post Coronary Artery Bypass (CABG) Grafting patients.

Keywords: IFT, LASER, Postpartum Low back pain, NPRS, Goniometer, Oswestry Disability Index

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INTRODUCTION

Back pain after birth is because muscle strain during actual birth. The lower back muscles are used, along with the pelvic muscles, during a vaginal birth. Sometimes this pushing can strain the muscles or ligaments in the lumber region of the back. Coccyx pain is sometimes the result of the vaginal birth. The coccyx is flexible during labor and is supposed to move out of the way of the birth passage, allowing an easier delivery. The subconscious mind might take the opportunity to use the end of pregnancy as a chance to start a psychologically induced pain syndrome (include depression, fatigue, listlessness, pain, malaise and anger)[1].

A majority of women suffer from low back pain and pelvic pain during pregnancy. This pregnancy-related condition negatively influences self-estimated health and interferes with sexual activity during pregnancy. The risk of experiencing LBPP in a subsequent pregnancy is extremely high. Postpartum back pain has been associated with considerable perceived disability in movement-related activities[2].

There has been a plethora of studies regarding the epidemiology of pregnancy- related LBP. Rates range from 25% to 90%, with most studies estimating that 50% of pregnant women will suffer from LBP. One third of them will suffer from severe pain, which will reduce their quality of life. The majority of women are affected in their first pregnancy. Eighty percent of women suffering from LBP claim that it affects their daily routine and 10% of them report that they are unable to work[3].

Pregnancy-related back pain is common and has been reported to occur in 20%–90% of women.1, 2, 3, 4, 5, 6 Up to 75% of women who had back pain during pregnancy may continue to have pain after giving birth.1, 2, 37, 8, 9, 10 Although less information is known about postpartum-related back pain, the literature has reported that 2% to 75% of women will continue to have back pain for up to 3 years following the index pregnancy 11, 12, 13 Furthermore, women who experience back pain at 3 months[4].

Physiotherapists use an array of interventions in the management of LBP. The effectiveness of most of these interventions has not been well-studied. The physiotherapy modalities used include heat, cryotherapy, massage, ultrasound, traction, acupuncture and electrical stimulation. Transcutaneous electrical nerve stimulation (TENS) and interferential current are the most used electrotherapy methods, although there is little scientific evidence to support their use. Indications for the use of interferential therapy (IFT) (interferential electrical stimulation) for the treatment of LBP had been reported[5, 6].

Laser therapy is a painless and non-invasive treatment that can be used in the treatment of different clinical conditions. It has been confirmed that laser therapy significantly reduces acute and chronic pain as well as rheumatoid arthritis, chronic osteoarthritis, carpal tunnel syndrome, fibromyalgia, knee injuries, pain in the shoulders and postoperative pains. A reduction of pain after laser treatment is a result of its anti-inflammatory effects, increase in microcirculation, and stimulation of immunological processes, nerve regeneration and increased secretion of β-endorphins[7,8].

Aim of the Study: The aim of the study is to compare the effect of IFT over LASER therapy

along with strengthening exercise for postpartum low back pain.

Need of the Study: The need of the study was to determine the effect of IFT and LASER along with strengthening exercise among subjects with post- partum low back pain. To enhance the low back pain and reduce the pain and improves the functional activity among subjects with post-partum low back pain.

METHODOLOGY

It is an Experimental study with Comparative Pre and Post study type**,** sample size: is 30 Subjects (Group A and Group B) and Random sampling method used to allocate the samples in two group. The study conducted at outpatient department, Faculty of physiotherapy, Dr. M.G.R Educational and Research Institute for duration 6 Months. Intervention Duration was Alternate days per week for the duration of 6 weeks. Outcome measures were Pain, Flexibility and Disability. Measurements tools used were NPRS for pain and Oswestry Disability Index (ODI) for Flexibility and Disability. Materials Used WERE Laser therapy equipment, Interferential Therapy (IFT).

Procedure: The research approval will be obtained from the institutional review board of faculty of physiotherapy, outpatient department, Dr. M.G.R Educational and Research Institute. An informed consent was collected from all the participants. A total 30 subjects were selected and divided into two group who have fulfilled the inclusion criteria were assigned into two groups consisting of 15 subjects each. The female subjects were included age group 25 years above. They were provided with informed consent prior the study. A detailed explanation about the treatment protocol was given to the patient. Demographic data like name, age, sex, chief complaints were collected and they are selected by random sampling method.

Following protocols to the Group A and Group B are below

GROUP A

Subjects receive IFT therapy according to the patient's tolerance, duration of the treatment 10 minutes and then strengthening exercise for about 30 minutes.

Strengthening exercise:

1. The procedure is clearly explained to patient before the treatment. the patient is in prone kneeling position and then ask the patient to lift their arms and legs opposite side. Hold the position for 30 secs and repeat this exercise for 3 sets with 5 repetitions for 6 weeks.
2. The patient lies on their back with knee bent and ask the patient to raise one leg up and hold for 30 secs. The patient should repeat these exercise 3 sets with 5 repetitions for 6 weeks.

GROUP B:

Subjects receive LASER therapy, the frequency is 2.2 joules, the duration 10 minutes and then strengthening exercise for about 30 minutes.

Strengthening exercise:

1. The procedure was clearly explained to patient before the treatment. Patient lie on their abdomen and ask the patient to keep their elbows front and lift their body and hold for 30 secs**.** The exercise was done 3 sets with 5 repetitions for 6 weeks.

2. Patient lie on their abdomen with extending their back with hands on support. The position holds for 30 secs. The exercise was done 3 sets with 5 repetitions for 6 weeks.

Data Analysis: The collected data were tabulated and analyzed using both descriptive and inferential statistics. All the parameters were assessed using Graph Prism Pad version 8.4.3, with a significance level of p value less than 0.05 and a 95% confidence interval set for all analysis. The Shapiro Wilk test was used to determine the normality of the data. In this study, Shapiro Wilk test showed that the data was normally distributed on the dependent values at P > 0.05. Hence parametric test was adopted. Paired t-test was adopted to find the statistical difference within the groups & Independent t-test (Student t-Test) was adopted to find statistical difference between the groups.

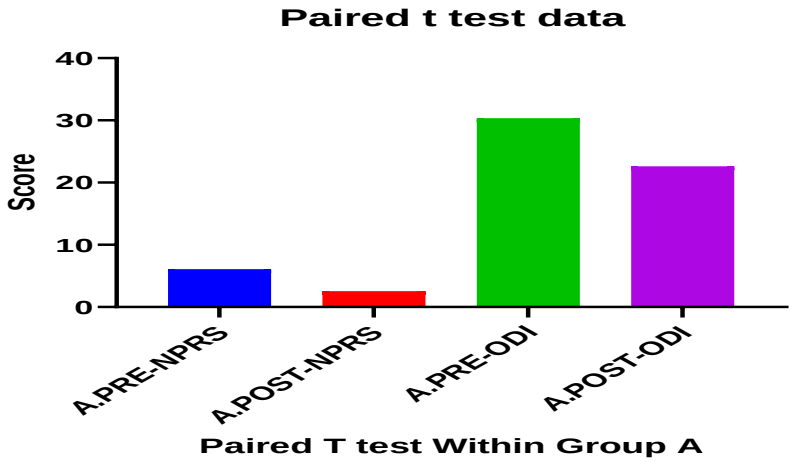
Group A:

Interferential Therapy (IFT) along with Strengthening Exercise

Table 1: Paired t test within Group A with Interferential Therapy (IFT) Along with Strengthening Exercise on NPRS and ODI

Group A	Number of Pairs	Mean Diff.	SD, SEM	df	t	P value	Sig. Diff. (P < 0.05)
NPRS Pre-test	15	3.533	1.642 0.4239	14	8.336	<0.0001	****
ODI Pre-test	15	7.733	3.390 0.8754	14	8,834	<0.0001	****

The above table 1 shows significant difference in NPRS and ODI within Group A with P value >0.0001



Graph 1: Presentation of Presentation of NPRS and ODI within Group A

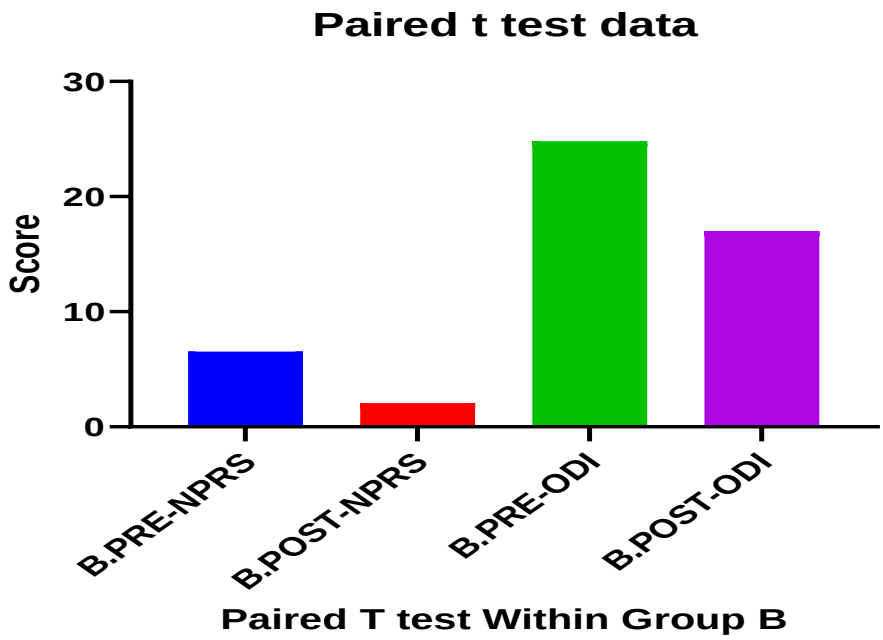
Group B:

Laser Therapy along with strengthening exercise

Table 2: Paired t test within Group B with Laser Therapy along with strengthening exercise on NPRS and ODI

Group B	Number of Pairs	Mean Diff.	SD, SEM	df	t	P value	Sig. Diff. (P < 0.05)
NPRS Pre-Post Test	15	4.467	1.125 0.2906	14	15.37	<0.0001	****
ODI Pre-Post Test	15	7.800	3.783 0.9769	14	7.985	<0.0001	****

The above table 2 shows significant difference in NPRS and ODI within Group B with P value >0.0001



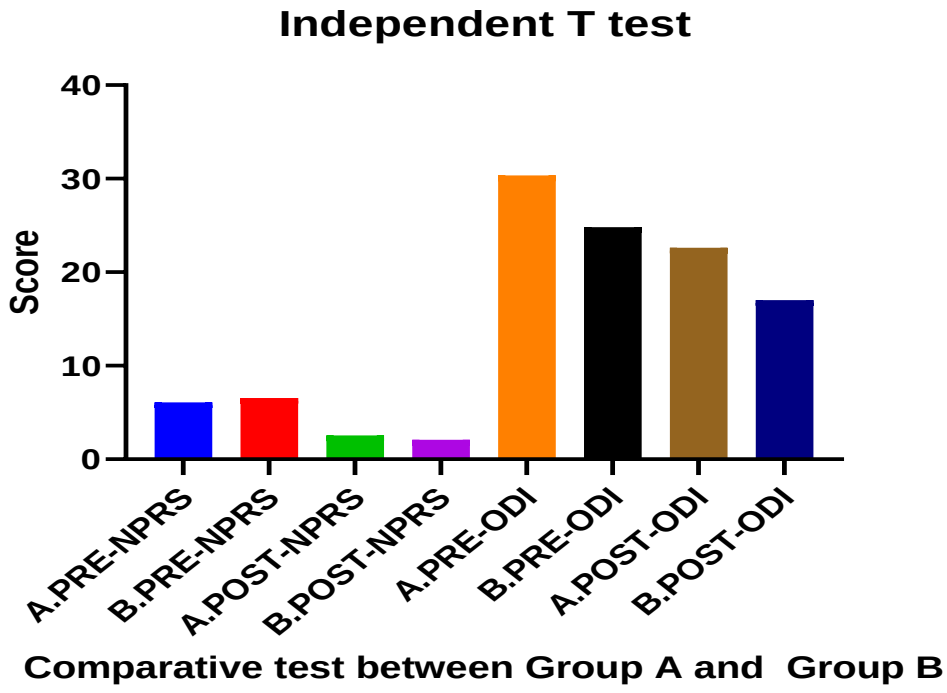
Graph 2: Presentation of NPRS and ODI within Group B

Comparative Test between Group A and Group B

Table 3: Independent t test on Pre-Test of NPRS and ODI between Group A and Group B

Pre-Test Between Group A&B	Number of Pairs	Mean Diff.± SEM	R	DF	t	P value	Sig. Diff. (P < 0.05)
NPRS	30	0.4667 ± 0.3944	0.0476	28	1.183	0.2467	NS
ODI	30	-0.4667 ± 0.3285	0.0672	28	1.420	0.1665	NS

The above table 3 shows NO significant difference NPRS and ODI between Group A and Group B with P value >0.267 and0.1665respectively.



Graph 3: Presentation of NPRS and ODI between Group A and Group B

Table 4: Independent t test on Post Test of NPRS and ODI between Group A and Group B

Post Test Between Group A&B	Number of Pairs	Mean Diff.± SEM	R	DF	t	P value	Sig.Diff. (P < 0.05)
NPRS	30	-5.533 ± 1.745	0.2641	28	3.170	0.0037	**
ODI	30	-5.600 ± 1.492	0.3347	28	3.753	0.0008	***

The above table 4 shows significant difference in NPRS and ODI between Group A and Group B with P value >0.0037and 0.0008respectively.

RESULT

Total 30 participants were included in the study based on specific selection criteria and divided in to 15 samples in each Group A and Group B. Participants were with age group between 21 to 44 years.

In this study, the comparative effect of Interferential Therapy (IFT) Along with Strengthening Exercise over Laser Therapy along with strengthening exercises on NPRS and ODI. It shows significant difference in NPRS and ODI between Group A and Group B with P value >0.0037and 0.0008 respectively.

Group B found more effective with mean score difference of 7.800 and 4.467, by Laser Therapy along with strengthening exercise

NPRS and ODI has improved with mean difference of 3.533 and 7.733, by Interferential Therapy (IFT) Along with Strengthening Exercise with P value >0.0001.

NPRS and ODI has improved with mean score difference of 7.800 and 4.467, by Laser Therapy along with strengthening exercise with P value >0.0001.

DISCUSSION

Lumbo pelvic pain is a common complaint during and after pregnancy. A systematic review found that 44% of pregnant women and 25% of newly delivered women experienced low back- and/or pelvic pain. One out of three in a Swedish population of newly delivered women reported lumbo pelvic pain 3 months after delivery. A Norwegian study found that in 16% of women reporting pelvic pain during pregnancy, pain persisted 3-6 months after delivery. For some, pain-related reduction of physical activity as well as diminished quality of life may persist several years after delivery. Consequently, pregnancy-related low back- and pelvic pain represents an extensive problem, both for individual women, families, and for society.

In this study called Effect of Shock Wave Therapy on Postpartum Low Back Pain, concluded that Shock wave therapy is an effective modality in alleviating postpartum low back pain.

Physical activity and persistent low back pain and pelvic pain post-partum, concluded that almost half of women who had experienced LBPP during pregnancy reported PA at six months post-partum. The number of years of pre-pregnancy PA did not influence the risk of persistent LBPP. Obesity was a risk factor for not practicing PA. In this study called on Pregnancy-related low back pain LBP is one of the most common musculoskeletal complaints of pregnant women. Prevalence of Low Back Pain, Pelvic Girdle Pain, and Combination Pain in a Postpartum Ontario Population, concluded that, this study demonstrated that 76% to 80% of respondents were pain free at 1, 3, and 6 months postpartum[10].

The efficacy of interferential therapy and exercise therapy in the treatment of low back pain concluded that this study demonstrated that interferential therapy combined with exercise therapy might be useful in treating low back pain[11].

study on Effectiveness of Interferential current for the Treatment of Chronic Low Back Pain, concluded that the results of this review demonstrated that IFC showed a positive effect on reducing pain and improving the functioning of patients with CLBP. Effects of High - Intensity Laser in Treatment of Patients with Chronic Low Back Pain, concluded that This study has shown that patient with chronic low back pain treated with a high-intensity laser has significantly reduced low back pain, reduced disability and improved range of motion[12,13].

This review suggested that individually instructed exercises seem to be more promising than exercises performed without guidance. The most convincing evidence stems from a study where 20 weeks with rehabilitation including specific motor control exercises was superior to 20 weeks with individualized physiotherapy without motor control exercises in the treatment of 81 women with pelvic girdle pain after pregnancy[14].

Evaluation of the Therapeutic Effect of Low-Level Laser in Controlling Low Back Pain: A Randomized Controlled Trial, concluded that we concluded that laser therapy (in combination with NSAIDs) is an effective and long-lasting therapeutic strategy in bringing relief from LBP without any significant side effect. American College of Sports Medicine position stand Progression models in resistance training for healthy adults Jason Muscle-strengthening Exercise Epidemiology: A New Frontier in Chronic Disease Prevention concluded that this current opinion paper presents an overview of the emerging discipline of muscle-strengthening exercise epidemiology[15].

It might be challenging to distinguish the natural course of improvement due to normalized hormonal levels and weight, from treatment-induced improvement. There is considerable spontaneous improvement in lumbo pelvic pain during the first weeks after delivery. For instance, in a large randomized trial, pain resolved within the first 12 weeks after delivery in 99% of the women, irrespective of type of treatment[16].

However, when lumbo pelvic pain pain persists 3-6 months after delivery it is not likely to resolve spontaneously and therefore improvement for participants in the present study was not likely spontaneous[17].

After the immediate post-partum period, other factors may be more important. In line with

this, no differences were observed between 12 women with pelvic girdle pain and 8 women who had recovered from pelvic girdle pain in activation of deep abdominal muscles in a previous study[18]. In pregnancy-related pelvic and low back pain, increased laxity of ligaments may lead to more reliance of fine-tuned local muscle activity to obtain ideal weight transfer in the lumbo-pelvic region[19, 20].

30 Subjects divided into two groups. Group A 15 Subjects and Group B 15 Subjects, the patients will be selected based on the inclusion and exclusion criteria for the study. The patient will be tested through Faber test, SLR test, sacroiliac joint stress test. Group A will be received IFT with intensity according to the patient tolerance along with strengthening exercise for the alternate days per week for the duration of 6 weeks. Group B will be received LASER with a dosage of 2.2 joules along with strengthening exercise for the alternate days per week for the duration of 6 weeks. NPRS and ODI has improved with mean difference of 3.533 and 7.733, by Interferential Therapy (IFT) Along with Strengthening Exercise with P value >0.0001. NPRS and ODI has improved with mean score difference of 7.800and 4.467, by Laser Therapy along with strengthening exercise with P value >0.0001.

Ethical Clearance: Ethical clearance has obtained from Faculty of Physiotherapy, Dr. MGR. Educational and Research Institute, Chennai, Tamil Nadu, India. Reference number: No: BPT IV Year-D Sec, 73/ PHYSIO/ IRB/ 2023-2024, dated: 16/12/ 2023.

Conflict of interest: There was no conflict of interest to conduct and publish this study.

Fund for the study: It was a self-financed study.

CONCLUSION

This study concludes that laser along with strengthening exercise was best among subjects with postpartum low back pain, it reduces pain and increase the functional activity when compared to IFT along with strengthening exercise. There was a significant difference in post-test of VAS, ODI in Group A and Group B. The application of laser along with strengthening exercise reduces pain and increase functional activity among the subjects. On comparing all the two groups Group B showed a marked improvement in functional activity and reduction of pain in patients with postpartum low back pain.

REFFERENCES

1. Bastiaanssen JM, de Bie RA, Bastiaenen CH, Essed GG, van den Brandt PA. A historical perspective on pregnancy-related low back and/or pelvic girdle pain. Eur J Obstet Gynecol Reprod Biol. 2005; 120:3–14.
2. Vleeming A, Albert HB, Ostgaard HC, Sturesson B, Stuge B. European guidelines for the diagnosis and treatment of pelvic girdle pain. Eur Spine J. 2008; 17:794–819.
3. Perkins J, Hammer RL, Loubert PV. Identification and management of pregnancy-related low back pain. J Nurse Midwifery. 1998; 43:331–340.
4. Stuge B, Hilde G, Vollestad N. Physical therapy for pregnancy related low back and pelvic pain: a systematic review. Acta Obstet Gynecol Scand. 2003; 82:983–990.
5. Werners R, Pynsent PB, Bulstrode CJ. Randomized trial comparing interferential therapy with motorized lumbar traction and massage in the management of low back pain in a primary care setting. Spine (Phila Pa 1976) 1999; 24:1579-84.

6. Lahad A, Malter AD, Berg AO, Deyo RA. The effectiveness of four interventions for the prevention of low back pain. JAMA 1994; 272:1286-91.
7. Ozdemir F, Birtane M, Kokino S. The clinical efficacy of low-power laser therapy on pain and function in cervical osteoarthritis. Clin Rheumatol. 2001; 20(3):181–4.
8. Gur A, Karakoc M, Nas K, Cevik R, Sarac J, Demir E. Efficacy of low power laser therapy in fibromyalgia:a single-blind, placebo-controlled trial. Lasers Med Sci. 2002; 17(1):57–61.
9. Newcomer K, Laskowski ER, Yu B, et al. Repositioning error in low back pain: comparing trunk repositioning error in subjects with chronic low back pain and control subjects. Spine 25 (2000): 245.
10. O'Sullivan PB, Burnett A, Floyd AN, et al. Lumbar repositioning deficit in a specific low back pain population. Spine 28 (2003): 1074-1079.
11. Vleeming A, Schuenke MD, Masi AT, et al. The sacroiliac joint: an overview of its anatomy, function and potential clinical implications. Journal of anatomy 221 (2012): 537-567.
12. DeWeijer VC, Gorniak GC, Shamus E. The effect of static stretch and warm-up exercise on hamstring length over the course of 24 hours. J Orthop Sports Phys Ther. 2003; 33(12):727–733.
13. Fairbank JC, Pynsent PB. The Oswestry Disability Index. Spine (Phila Pa 1976). 2000; 25:2940–2952
14. White LJ, Velozo CA. The use of Rasch measurement to improve the Oswestry classification scheme. Archives of Physical Medicine & Rehabilitation. 2002; 83:822–831.
15. Ainscough-Potts A. M, Morrissey M. C, Critchley D. The response of the transverse abdominis and internal oblique muscles to different postures. Man Thar. 2006;11(1):54–60
16. Barker P. J, Guggenheimer K. T, Grkovic I, Briggs C. A, Jones D. C, Thomas C. D, Hodges P. W. Effects of tensioning the lumbar fasciae on segmental stiffness during flexion and extension: Young Investigator Award winner. Spine (Phila Pa 1976) 2006; 31(4):397–405.
17. Dieppe PA, Lohmander LS. Pathogenesis and management of pain in osteoarthritis. Lancet (London, England) 2005; 365:965–973.
18. Jorge S, Parada CA, Ferreira SH, et al. Interferential therapy produces antinociception during application in various models of inflammatory pain. Phys Ther 2006; 86:800–8.
19. Pope GD, Mockett SP, Wright JP. A survey of electrotherapeutic modalities: ownership and use in the NHS in England. Physiotherapy 1995; 81:82–91.
20. Lindsay DM, Dearness J, McGinley CC. Electrotherapy usage trends in private physiotherapy practice in Alberta. Physiother Can 1995; 47:30–4.

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