

Use of Electrophysical Agents in Non Specific Low Back Pain: A Cross Sectional Survey on Physiotherapist in Karachi Pakistan

Rafia Maqbool¹, Mohabbat Ali², Syed Muhammad Saad Iqbal^{3*}, Dr. Muzafferuddin⁴, Muhammad Hussain⁵, Mubashira Manzoor⁶

¹⁻⁶MCPMR Memon Medical Institute Hospital, Karachi, Pakistan

DOI: [10.36348/jaspe.2022.v05i07.001](https://doi.org/10.36348/jaspe.2022.v05i07.001)

| Received: 21.05.2022 | Accepted: 29.06.2022 | Published: 12.07.2022

*Corresponding author: Syed Muhammad Saad Iqbal
MCPMR Memon Medical Institute Hospital, Karachi, Pakistan

Abstract

Objective: To determine the electro physical agents (EPA) commonly used by physiotherapist in the management of non-specific low back pain in Karachi, Pakistan. **Methodology:** A cross sectional study was conducted on physiotherapist practicing in different clinical settings in Karachi Pakistan between January to March 2016. Written informed consent were taken from each study participants. Data were collected from 90 physiotherapists who were selected through non probability purposive sampling. Structured questionnaire was used to collect data. Data was entered and analyzed by using SPSS version 21. **Results:** It was found that out of 90 physiotherapists, 27(30.0%) male and 63(70.0%) female had responded. With mean (S. D) Age was 28.8(4.32188). The EPA used mostly in patients with non-specific low back pain as TENS 18(20.0%), Thermotherapy 17(18.9%), Ultrasound therapy 12(13.3%) and Interferential therapy 9(10.0%). In combination TENS, ultrasound and thermotherapy is about 8(8.9%) and interferential and thermotherapy is about 7(7.8 %). **Conclusion:** Physiotherapists give preference to some EPA such as TENS, Thermotherapy, Interferential therapy (I.F.C) and Ultrasound (U.S) to manage nonspecific low back pain. However, there is a need to highlights the use of EPA according to Evidence based practice.

Keywords: Electro physical agents, nonspecific low back pain, Transcutaneous Electrical Nerve Stimulation, Ultrasound therapy.

Copyright © 2022 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

INTRODUCTION

Nonspecific Low back pain(LBP) over life span affects 80-85% of people and is most frequent reason for visiting the doctors in upper, middle and low earning people of all the countries [1]. Nonspecific LBP is most common in young and adult aged people [2]. It affects the functional activities of daily living. Low back pain put a significant burden on society [3, 4]. It is therefore essential for low back pain patient to understand and to prevent LBP. The international burden of Disease LBP was ranked as sixth and is among the top ten of DALYs (disability-adjusted life years). Lumbago causing diseases and injuries higher than HIV, RTA, bronchogenic carcinoma, chronic obstructive airway disease, tuberculosis, and premature parturition complications. Age-standardized incidence in 2010 was peak in Western Europe 15.0% followed by North Africa/Middle East 14.8% and lowly in the Caribbean 6.5% followed by central Latin America 6.6%. Incidence from 1990 toward 2010 did not change considerably [5]. In United States of America (USA)

and Australia, LBP incidence ranges from 26.4% to 79.2% [6, 7]. The point incidence of LBP is 28.5% bring into being in an Asian country, over 70% life span prevalence of backache is reported [8]. Prevalence of low back pain in India is range from 6.2% to 92% [9] Prevalence of low back pain in Pakistan for male: 63.4% and female: 36.6% [10]. Mild to severe LBP may be experienced as hurting, pointed or boring, well-defined, or unclear. The pain may begin abruptly or develop gradually. In general LBP classified as 'specific' or 'non-specific'. Low back pain can be divided into three types: chronic, acute and sub-acute back pain [5]. Chronic back pain (CLBP) is defined as lumbago persisting for greater than 7-12 weeks, or returning lumbago that occasionally influence a person over an extended time. Acute back pain is defined as lumbago <12 weeks. Sub-acute pain is defined lumbago among 6 weeks and 3 months. Many patients recover quick with LBP.LBP commonly follows a repeated continuity, with aggravations happening over time. Causes of non-specific low back may be a strain of a

ligament or muscle, a slight trouble with the disc and with a small 'facet' joint between two vertebrae. Other slight troubles in the tissues and structures of the lower back that end result in pain [11]. Risk factors for LBP could be absolute (non-modifiable) or changeable (modifiable). The unchallengeable factors are age, parity, earlier history of LBP and most important scoliosis, whilst the changeable factors include an inactive lifestyle, fatness, and tobacco smoke and drug dependence. Other variable factors are occupation-related: bad posturing, prolonged sit, slanting, twisting, stoop and lifting of heavy loads [12]. Diagnosis can be prepared by explanation of pain and by physical assessment of lumbar spine [11]. Management for low back pain including Bed rest and traction are not suggested due to evidence signifying lack of advantage. Maintaining active life style has little advantage in reducing pain. Spinal manipulation is more successful than other conventional treatment in reducing backache and better function at less than three months, and three to twelve-month follow-up, Back school has lacking evidence in reducing pain compared to active and passive and sham treatment. It provides equally effective to back school, corset and TENS but there is inconsistent proof of massage compare to manipulation. Electro physical agents are used for improving pain, disability and daily living activities. Common EPA including Electrical muscle stimulation, low level laser, superficial hot and cold therapy (Thermal therapy), Transcutaneous Electrical Nerve Stimulation (TENS), Interferential current therapy, shortwave diathermy, therapeutic ultrasound from multiple RCTs conflicting findings [13]. Airaksinen, Van Tulder *et al.*, 2006 many of physical therapists measured suggestion on back care, exercises and electrotherapy, particularly short wave diathermy and interferential therapy, as the solution elements in the treatment of lumbago, with use of hand therapy. Mostly Chronic LBP patients seen and the majority physical therapists treat patients above 8–12 sessions. Recent European guidelines emphasizes on advice paying concentration mostly on work natural law

issues rather than maintain usual action and stay at occupation [14].

From Acute low back ache improvement patient treated with hot pack with back strengthening exercises show greater progress than the patient treated with SWD (continuous mode) and back strengthening exercises [15].

METHODOLOGY

A cross sectional study was conducted in physiotherapy department of two government hospitals and five private hospitals in Karachi Pakistan between January to March 2016. Written informed consent were taken from each study participants. Data were collected from 90 physiotherapists who were selected through non probability purposive sampling. Sample size was calculated through WHO software Open Epi info. With anticipated frequency 37%, design effect 1& confidence limit 10%, sample size calculated as 90. study was completed in 2 months. Qualified clinical physiotherapists working clinical setting with musculoskeletal patients were included and assistant physiotherapist and clinical settings with no musculoskeletal patients were excluded.

Structured questionnaire was used to collect data. Data was entered and analyzed by using SPSS version 21. Frequencies and percentages were taken out for all categorical variables.

RESULTS

It was found that out of 90 physiotherapists, 27(30.0%) male and 63(70.0%) female had responded. With mean (S.D) Age was 28.8(4.32188).The EPA used mostly in patients with nonspecific low back pain as TENS 18(20.0%), thermotherapy 17(18.9%), ultrasound therapy 12(13.3%) and interferential therapy 9(10.0%).In combination TENS, ultrasound and thermotherapy is about 8(8.9%) and interferential and thermotherapy is about 7(7.8 %) (Table 1).

Table 1: Overall Which Modalities Apply Mostly in Patients with NSLBP

Variable	Frequency	Percent
Ultrasound Therapy(U.S)	12	13.3
Transcutaneous Electrical Nerve Stimulation(TENS)	18	20.0
Interferential Therapy(IFC)	9	10.0
Shortwave Diathermy(SWD)	3	3.3
Thermotherapy	17	18.9
TENS and Ultra Sound	1	1.1
TENS and Interferential Therapy	3	3.3
Interferential and Thermotherapy	7	7.8
Shortwave Diathermy and Thermotherapy	2	2.2
TENS, ultrasound and Thermotherapy	8	8.9
US,TENS and SWD	2	2.2
TENS and Thermotherapy	1	1.1
TENS, Interferential and Thermotherapy	1	1.1
US, Interferential and Thermotherapy	2	2.2
Others	4	4.4
Total	90	100.0

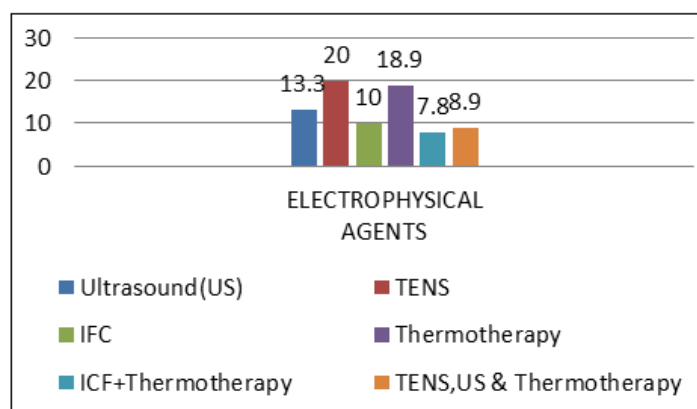


Figure 1: Commonly Use Electro Physical Agents

DISCUSSION

The aim of present study is to evaluate the commonly use electro physical agents (EPA) by physical therapist in the management of nonspecific low back pain.

The study finds of present study showed that Electro physical agents such as TENS, Thermotherapy, Ultrasound, and IFC use relatively higher than others EPA. TENS 20%, Thermotherapy 18.9%, Ultrasound 13.3% and IFC 10%. This finding is parallel with another cross sectional survey conducted by Dissanayakae T *et al.*, (2015) on the attitudes and beliefs about the use of TENS for pain management by physiotherapists working in two cities in Sri Lanka. They conclude that TENS as an effective treatment option to manage musculoskeletal and neuropathic pain [16]. In another study of S. Poitras and L. Brosseau (2008) on the Evidence-informed management of chronic low back pain with transcutaneous electrical nerve stimulation, interferential current, electrical muscle stimulation, ultrasound, and thermotherapy. They reported that a recent review of studies available indicates that transcutaneous electrical nerve stimulation (TENS) may provide immediate decrease in pain intensity. However, there was inconsistent proof that TENS can improve chronic low back pain. In another study of Jorge P (2010) on Effectiveness of Interferential Current Therapy in the Management of Musculoskeletal Pain. They reported that Interferential current as a complement to another intervention seem to be more effectual for reducing pain than a control treatment at set free and more effectual than a placebo treatment at the 3-month follow-up [17]. In another study Nadler SF *et al.*, (2003) on Continuous low level heat wrap therapy for treating acute nonspecific low back pain. They reported that for acute nonspecific LBP nonstop low-level heat wrap therapy was open to provide major therapeutic benefits in patients with, as indicate by increased pain relief, decreased muscle stiffness and disability and trunk flexibility, and it provide when compared with placebo [18]. In another study of Ebadi *et al.*, (2012) on the effect of continuous ultrasound on chronic non-specific low back pain. They

reported that Randomized clinical trial semi-supervised routine of exercise indicate that augment 1 MHz, 1.5 W/cm² US had appreciably positive effects on lumbar bending and lumbar extension ROM, and endurance time in patients with nonspecific low back pain [19].

CONCLUSION

Physiotherapists give liking to some EPA such as Thermotherapy, Interferential therapy (I.F.C), TENS and Ultrasound (U.S) to manage nonspecific low back pain. The electro physical agents especially thermotherapy and ultrasound were revealed to give major therapeutic benefit in patient of low back pain but the use of TENS is controversial for chronic low back pain. However, there is a need to highlights the use of EPA according to Evidence based practice.

Disclaimer: None.

Declaration of Interest: None.

Grant Support & Financial Disclosures: None.

REFERENCES

- Hoy, D., March, L., Brooks, P., Woolf, A., Blyth, F., Vos, T., & Buchbinder, R. (2010). Measuring the global burden of low back pain. *Best practice & research Clinical rheumatology*, 24(2), 155-165.
- Taguchi, T. (2003). Low back pain in young and middle-aged people. *Japan Medical Association Journal*, 46(10), 417-423.
- Dagenais, S., Caro, J., & Haldeman, S. (2008). A systematic review of low back pain cost of illness studies in the United States and internationally. *The spine journal*, 8(1), 8-20.
- Brooks, P. (2006). The burden of musculoskeletal disease—a global perspective. *Clin Rheumatol*, 25(6), 778-781.
- Vos, T., Flaxman, A. D., Naghavi, M., Lozano, R., Michaud, C., Ezzati, M., ... & Harrison, J. E. (2012). Years lived with disability (YLDs) for 1160 sequelae of 289 diseases and injuries 1990–2010: a systematic analysis for the Global Burden

- of Disease Study 2010. *The lancet*, 380(9859), 2163-2196.
6. Deyo, R. A., Mirza, S. K., & Martin, B. I. (2006). Back pain prevalence and visit rates: estimates from US national surveys, 2002. *Spine*, 31(23), 2724-2727.
 7. Walker, B. F., Muller, R., & Grant, W. D. (2004). Low back pain in Australian adults. Prevalence and associated disability. *Journal of manipulative and physiological therapeutics*, 27(4), 238-244.
 8. Khan, A. A., Uddin, M. M., Chowdhury, A. H., & Guha, R. K. (2014). Association of low back pain with common risk factors: a community based study. *Indian J Med Res*, 25, 50-55.
 9. Bindra, S., Sinha, A. G. K., & Benjamin, A. I. (2015). Epidemiology of low back pain in Indian population: a review. *Int J Basic Appl Med Sci*, 5(1), 166-179.
 10. Asim, H. M., & Ismail, M. S. (2012). The Prevalence Of Chronic Low Back Pain In Office Workers Of Lahore Medical And Dental College And Ghurki Trust Teaching Hospital, Lahore. *Int J Rehab Sc*, 1(1), 25-29
 11. Royalberkshire.nhs.uk.[Internet].2015[cited9August2015].Availablefrom:<http://www.royalberkshire.nhs.uk/patient-informationleaflets/Pain%20Management/Back%20pain%20non%20specific%20lower%20bac20pain.htm>
 12. Vindigni, D., Parkinson, L., Walker, B., Rivett, D. A., Blunden, S., & Perkins, J. (2005). A community-based sports massage course for Aboriginal health workers. *Australian Journal of Rural Health*, 13(2), 111-115.
 13. [Internet].2015[cited9August2015].Availablefrom:http://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/cp95.pdf
 14. COST B13 Working Group on Guidelines for Chronic Low Back Pain. European guidelines for the management of chronic non-specific low back pain. European Commission. 2004. Research Directorate-General, Dept of Policy, Co-ordination and Strategy. (http://www.backpain europe.org/web/html/wg2_results.html)
 15. Yasmeen, S., & Rizvi, S. A. S. (2013). Effects of Short Wave Diathermy and Hot Pack with Back Strengthening Exercises in the Management of Acute Low Back Pain. *Pakistan Journal of Rehabilitation*, 2(2), 10-14.
 16. Dissanayaka, T. D., Banerjee, G., & Johnson, M. I. (2014). A survey of the attitudes and beliefs about the use of TENS for pain management by physiotherapists working in two cities in Sri Lanka. *Patient Related Outcome Measures*, 5, 35, 35-41.
 17. Poitras, S., & Brosseau, L. (2008). Evidence-informed management of chronic low back pain with transcutaneous electrical nerve stimulation, interferential current, electrical muscle stimulation, ultrasound, and thermotherapy. *The Spine Journal*, 8(1), 226-233.
 18. Nadler, S. F., Steiner, D. J., Erasala, G. N., Hengehold, D. A., Abeln, S. B., & Weingand, K. W. (2003). Continuous low-level heatwrap therapy for treating acute nonspecific low back pain. *Archives of physical medicine and rehabilitation*, 84(3), 329-334.
 19. Ebadi, S., Ansari, N. N., Naghdi, S., Jalaei, S., Sadat, M., Bagheri, H., ... & Fallah, E. (2012). The effect of continuous ultrasound on chronic non-specific low back pain: a single blind placebo-controlled randomized trial. *BMC musculoskeletal disorders*, 13(1), 1-10.