

ORIGINAL ARTICLE

Clinical Decision Making of Electrophysiological Agents by Physical Therapists

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ABSTRACT

Background: Therapeutic modalities play a major role in rehabilitation and assist other therapeutic treatments, such as physical exercise and manual therapy.

Aim: To assess the factors that affect the clinical decision making of electrophysiological agents by physical therapists.

Study design: Descriptive cross-sectional survey.

Methodology: Sample was taken through non-probability sampling technique. Sample size was calculated through Census method. Data was collected through online survey and questionnaires that were randomly distributed to all clinical physical therapists. Data was evaluated by using SPSS v24. Quantitative variables are represented in the form of frequencies %age.

Results: 31(54%) of PTs reported Research evidence as a strong factor, 30(52%) reported availability of equipment and 40(70%) of PTs reported past clinical experience as a strong factor that influence the decision of usage of electrophysiological agents. The most frequently available agents were ultrasound(96%), hot pack (98%), cold pack (96%) and TENS (98%).

Practical Implication: This study has determined the influence of various factors that affect the clinical decision-making abilities of clinical physical therapists working in Pakistan.

Conclusion: It was concluded that making a decision while using EPAs was a complex phenomenon. All the factors must be considered when using EPA as treatment modality. Furthermore, there must be a regular check-up regarding the availability and up-dated version of EPAs by health policy makers in all clinical settings.

Keywords: Electrophysiological Agents, Therapeutic Modalities and Rehabilitation.

INTRODUCTION

Therapeutic modalities or electro-physical agents are those modalities that transfer heat, mechanical, electromagnetic and light energies to acquire a specific therapeutic effect (like decrease in pain, increase in range of motion, improve tissue healing, or improve muscle recruitment) in physical therapy management of a patient. Therapeutic modalities play a major role in rehabilitation and assist other therapeutic treatments, such as physical exercise and manual therapy^{1,2}.

Choosing the appropriate EPA with proper technique and dosage is often not a straight forward clinical choice. Remembering that when EPAs are utilized improperly, they may detrimentally affect a patient's prosperity. Therefore, the process of clinical decision-making can tell which modality is preferably be used to treat the problem^{2,3}.

Clinical decision making (CDM) is the foundation of the fruitful care of patients. It is defined as "a process including skills such as critical thinking and problem solving, which are essential to making appropriate decisions and taking action for the effective care of patients". The evolution of CDM skills holds a lot of self-assessment and reflection, as well as experience^{3,4}.

There is huge difference between the usage of modalities in the past versus usage in the modern era. For example, microwave diathermy (MWD) used frequently before the 1970s has now become uncommon in Australia. Physiotherapists lack confidence in choosing a specific modality for a specific therapeutic purpose because they are unaware of the effectiveness and evidence-based practice knowledge of the modality from the past. There has been no systematic study to inform the tendency of usage for electrotherapeutic modalities. Therefore, there is a need to update the literature and body of knowledge on the usage of electrotherapy modalities⁵⁻⁷. To the best of my knowledge no similar study related to the accessibility and usage of different modalities and clinical decision-making ability of physical therapists has been conducted.

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The objective of the study was to assess the factors that affect the clinical decision making of electrophysiological agents by physical therapists.

METHODOLOGY

A descriptive cross-sectional survey was conducted. Sample size was collected through non-probability convenient sampling technique. Total sample size was 57 and sample size was calculated through Census method⁸. Sample was calculated from Ghurki trust teaching hospital, Bahria international hospital Lahore, Shalimar hospital Lahore and National hospital Lahore. The study was conducted for six months. Sample selection criteria included clinical physical therapists with minimum of ten years' clinical experience and academic demonstrators. Newly graduated physical therapists without any clinical experience and under graduate physical therapists were excluded from sample. An EPA questionnaire was evolved. It was based on three sections including demographics, factors influencing EPA usage, availability and frequency of EPA usage. Questionnaires were distributed in hard copy and as an online survey to all the physical therapists working in public and private clinical settings. Permission from the Ethics Committee of the LCPT was obtained. Questionnaire along with consent was provided to all the physical therapists and they were assured that information provided by them will be kept confidential.

Statistical analysis: Data was evaluated by using SPSS version 24. Descriptive statistics are represented in the form of mean and standard deviation. Quantitative variables are represented in the form of frequencies and percentages.

RESULTS

Figure-1 showed that almost 31(54%) of PTs reported research evidence a strong factor. Almost 30(52%) reported availability of equipment a strong factor (Fig. 2), 40(70%) of PTs reported past

clinical experience a strong factor (Fig. 3).

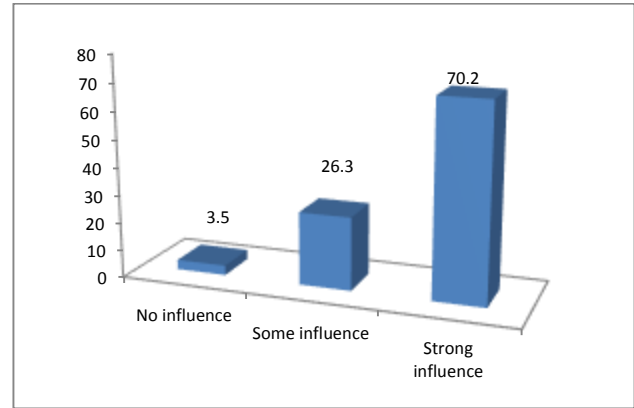
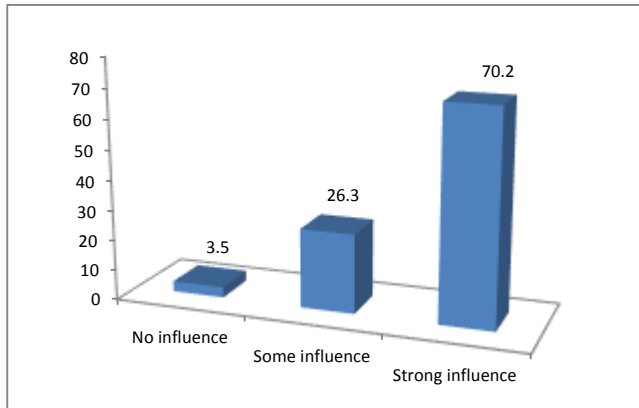


Figure-1: Percentage distribution for past evidence

Figure-2: Percentage distribution for equipment availability

Table-1: Factors influencing the decision-making ability of physical therapists

Factors	No influence	Some influence	Strong influence
Entry level Training	11 (19.3%)	27 (47.4%)	19 (33.3%)
Patient Preference	4 (7.0%)	22 (38.6%)	31 (54.4%)
Technophobia	24 (42.1%)	30 (52.6%)	3 (5.3%)
Clinical guidelines	3 (5.3%)	20 (35.1%)	34 (59.6%)
Exhibition of new equipment byseller	14 (24.6%)	34 (59.6%)	9 (15.8%)
Level of self-confidence	7 (12.3%)	30 (52.6%)	20 (35.1%)

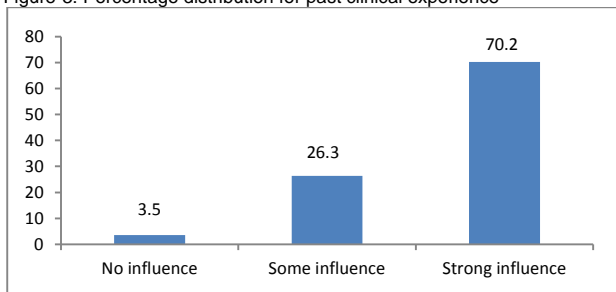
Table-2: Percentage Availability Of Frequently Used Modalities

EPAs	Frequency of availability			Frequency of use		
	Yes(%)	No(%)	Daily(%)	Weekly (%)	Monthly(%)	Not at All (%)
Ultrasound	55(96.5%)	2(3.8%)	42 (73.7%)	6(10.5%)	6(10.5%)	3 (5.3%)
Hot packs	56 (98.2%)	1(1.8%)	47(82.5%)	5(8.8%)	2(3.5%)	3(5.3%)
Cold packs/Ice	55(96.5%)	2(3.5%)	42(73.7%)	4(7.6%)	8(14.0%)	3(5.3%)
Wax	43 (75.4%)	14 (24.6%)	20(35.1%)	3(5.3%)	12(21.0%)	22(38.6%)
SWD	43(75.4%)	14(24.6%)	16(28.1%)	2(3.5%)	16(28.1%)	23(40%)
Infrared lamps	50(87.7%)	7(12.3%)	15(26.1%)	5(8.8%)	22(38.6%)	15(26.3%)
Laser	20(35.1%)	37(64.9%)	6(10.5%)	2(3.5%)	6(10.5%)	43(75.4%)
Vapocoolantsprays	24(42.1%)	33(57.9%)	4(7.6%)	1(1.8%)	6(10.5%)	46(80.7%)
Interferentialcurrent	40(76.2%)	17(29.8%)	15(26.3%)	4(7.6%)	13(22.8%)	25(43.9%)
TENS	56(98.2%)	1(1.8%)	49(86.0%)	2(3.5%)	3(5.3%)	3(5.3%)
NMES	48(84.2%)	9(15.8%)	39(68.4%)	6(10.5%)	2(3.5%)	10(17.5%)

Table-1 showed that almost 31(54%) of PTs reported patient preference a strong factor and 34(59%) of PTs reported clinical guidelines as a strong factor influencing the decision-making ability of physical therapists. Factors were presented as frequency and percentage in table-1.

Regularly used agents were ultrasound (96%), hot pack (98%), cold pack (96%), TENS (98%) and NEMS (84%). These were available and used on daily basis in majority of clinical settings. Modalities least available were laser (35%) and vapo-coolant sprays (42%) as shown in table-2.

Figure-3: Percentage distribution for past clinical experience



DISCUSSION

The ultimate purpose of this study was to find the influence of factors affecting the decision making process and secondly to

determine the status of EPAs regarding their accessibility and frequency of use in different clinical settings.

The findings reported in this study regarding influence of different factors upon decision were almost same as the results of old studies. Factors such as research evidence, availability of equipment, past clinical experience, patient preference and clinical guidelines were reported to have strong influence by majority of participants. While according to previous studies, accessibility of equipment was predominant factor. Factors such as technophobia, demonstration of new equipment had a least effect in this study and also in previous studies⁶⁻⁹.

Physical therapists use many EPAs in their intervention plan. However, certain EPAs are used more often than others. Commonly available and used EPAs recognized in this survey population were hot packs, cold packs, ultrasound, infrared lamps, TENS, and NMES. These EPAs were consistent with usage findings from past research and some previous international studies except for infrared lamp that was not commonly available and used in past. EPA that least available was vapo-coolant sprays^{8,10}.

One previous study reported the findings regarding factors which affect clinical decision making by physical therapists. Study reported that on- the-job training was the most important factor^{9,11}. Continuing educational programs, workshops, consultation with supervisors and peer should also be followed. Academic programs or entry level training were not giving much importance. Results regarding the use of different modalities revealed that hot and cold packs were the most commonly used agents. Paraffin was used next most frequently, followed by contrast bath, NMES, fluid

therapy, whirlpool, and TENS. The least used modality was ultrasound. The results regarding the use of modality to the present study are similar except that paraffin wax is not much used^{9,10}.

Other studies reported the results regarding use of ultrasound, short wave diathermy and laser for the management of soft tissue lesions¹²⁻¹⁵. The study also gives information about their availability and usage. US was found to be available in all departments, SWD was less common and had low levels of availability while laser was found to have double the availability in the present study as to those reported slight earlier. The results of study mentioned are similar to present study regarding availability of ultrasound and SWD except for laser therapy whose availability is not recorded, while present study has recorded results for 13 modalities regarding availability and usage^{16,17}.

Limitations: Sample size was very small and financial limitations followed by low man power for follow-ups.

CONCLUSION

It was concluded that making a decision while using EPAs was a complex phenomenon. All the factors must be considered when using EPA as treatment modality. Furthermore, there must be a regular check-up regarding the availability and up-dated version of EPAs by health policy makers in all clinical settings.

Author's contribution: NUH&MK: Overall supervision, write up and literature review, II&AA: Statistics application, analysis literature review, help in write up, ZH&SAH: Literature review help in write-up.

Conflict of interest: None

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