

Non-invasive Pain Management Techniques in Inpatient Neurological Rehabilitation

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BACKGROUND

Pain is patient-specific and there can be a variety of underlying factors that determine pain experience. It can be a limiting factor in the rehabilitation process. Throughout this experience at Sharp Memorial Allison deRose Rehabilitation Center, mind-body technique(s) were utilized, as complimentary intervention, for patients that reported pain and were limited in participation in conventional occupational therapy services. These techniques included breathing techniques, mindfulness, and progressive muscle relaxation. Evidence reveals that paying attention to breathing significantly reduces pain; it is indicated that a faster inhalation and slower exhalation is the most effective technique (Jafari, Heylen, Vlaeyen, Van Den Bergh, & Van Diest, 2017). Research shows that mindfulness interventions are beneficial towards health, well-being and pain management (Mehan & Morris, 2018). According to Solati (2019), progressive muscle relaxation can increase the pain threshold, decrease stress, increase anxiety tolerance and increase adaptation level in patients.

CLIENT HISTORY

Name: Patient A

Precautions: Spinal precautions, C-collar at all times, TLSO OOB, but okay to shower without TLSO.

Referral to OT: Coordination deficits, Muscle weakness (generalized), Pain, Swelling in limb

Dx: TBI, encephalopathy, unresponsive at scene (+CPR), R frontal hemorrhage contusion, intraventricular hemorrhage, bilateral rib fx, R SDR, L hemothorax, T2-3 spine fx s/p stabilization and decompression, L brachial plexus injury

PMH: R rotator cuff injury

Age: 65 y/o; Male

Occupation: Retired firefighter, Pétanque Club President, Father/Grandfather

Living Situation: Living in a single-story house by himself

RESEARCH QUESTION

For patients that have pain, does utilizing non-invasive pain management techniques, in addition to original plan of care, allow for increased patient participation during therapy?

METHODS

- Identified patient(s) that experienced pain higher than their acceptable level
- Patient(s) agreed to participate in non-invasive pain management intervention(s), evidence through signed contract
- Administered Anxiety Self-Rating Scale
- Utilized a 0-10 scale to measure pain level (0 no pain-10 worst pain that you could have)
- Educated, demonstrated, and guided patient on techniques
 - Diaphragmatic Breathing
 - Inhale/Exhale 3-6 seconds, with an emphasis on exhale
 - Mindfulness
 - Being present and showing gratitude
 - Guided Progressive Muscle Relaxation
 - Isometrically contracting a variety of different areas of the body for 5-10 seconds, then releasing the contraction
- Completed non-invasive pain management activity, which included a combination of the techniques (listed above) lasting 15-30 minutes
- Provided Resources
 - Educated patient how utilizing techniques every day, could benefit pain and anxiety
 - Provided YouTube links for self-practice (for anytime use or pre/post therapy sessions)
- Modified treatment by including:
 - Implemented 0-10 scale to anxiety pain level (0 no anxiety -10 worst anxiety that you could have) pre-/post-intervention
 - to track and measure
- Completed non-invasive pain management intervention: 3 total times, following the same outline
 - 2/3 treatments were completed in addition to original therapeutic plan of care
 - 1/3 sessions was billed towards occupational therapy's plan of care

RESULTS

In addition to original plan of care, completing 3 sessions of non-invasive pain management techniques showed promising results in reducing pain and anxiety levels.

DATE	PAIN (PRE)	PAIN (POST)	ANXIETY (PRE)	ANXIETY (POST)
2/20/20	2/10	≤1/10	Completed self-reported anxiety screening tool, in which he scored a total score of 11, which indicated moderate to severe anxiety	Self-reported: "I feel a little better, this helped."
2/26/20	3/10	3/10	5/10	3/10
3/5/20	4.5/10	4/10	2.5/10	2/10

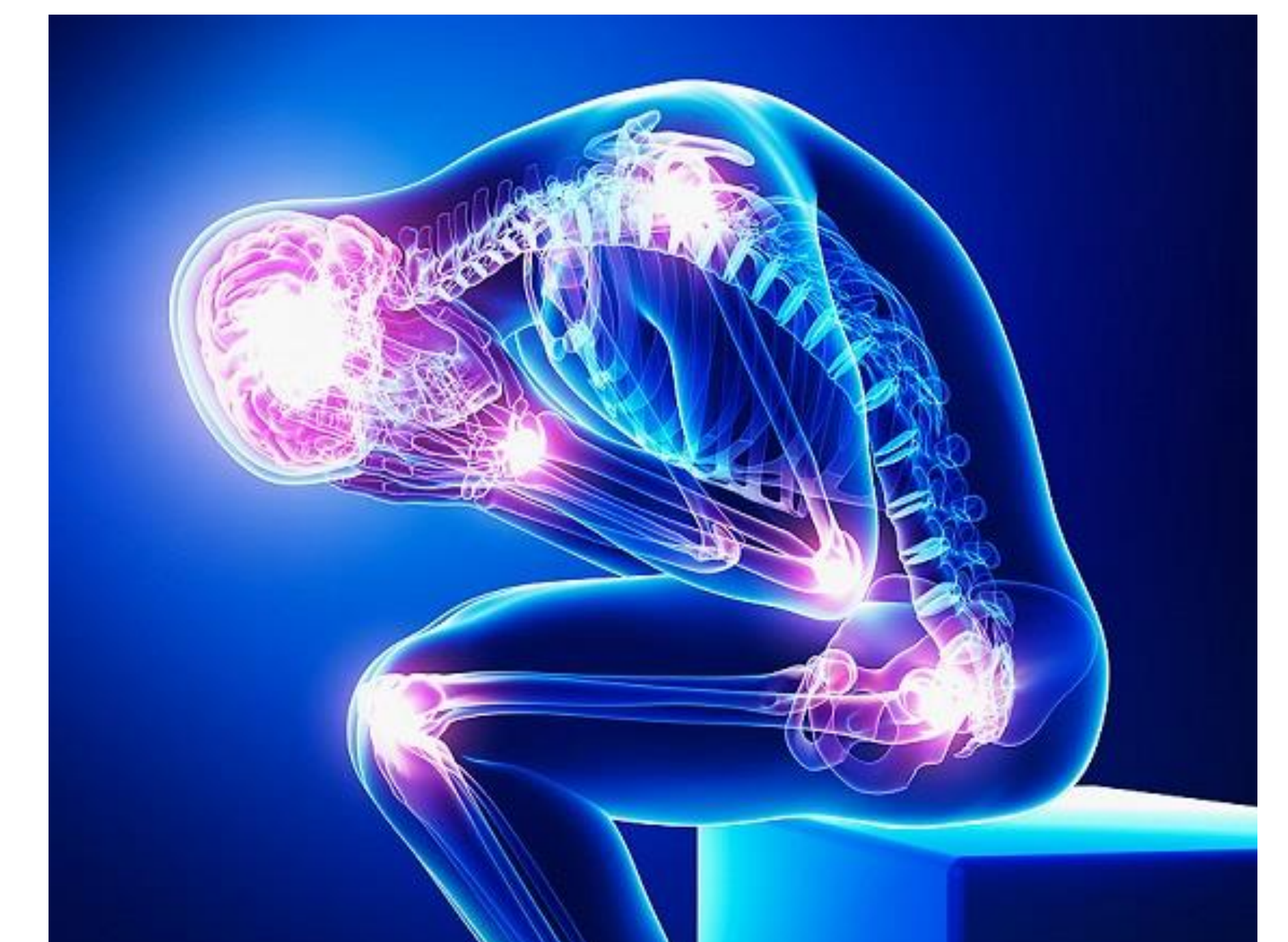
It appeared as if the patient's mindset was altered, having more motivation and less anxiety/stress. Patient A reported that "doing these exercises make me feel better and ready to face my challenges." Though there were may confounding variables, Patient A was more willing to participate in therapy sessions; previously patient would attempt to deny therapy due to pain and required encouragement to participate. Specifically in occupational therapy, patient would utilize upper extremities in BADLs/IADLs even when in pain, which he did not do before without complaint. Patient A had a positive response to treatment, he reported that participating in mind-body technique(s) really helped him and his stay in the hospital. The last non-invasive pain session was by patient request.

A limitation of this study included the study design; this included frequency of intervention, not having a control group/placebo, management of carry-over effect, and not utilizing all subjective measures. Further research is needed.



BOTTOM LINE FOR OT

Utilizing non-invasive pain management techniques, in addition to original plan of care, can be utilized to benefit overall patient care and satisfaction. A variety of non-invasive approaches can be applied in treatment sessions; both directly and indirectly. The field of occupational therapy should incorporate mind-body techniques for holistic care and treatment for patients that exhibit pain symptoms. Further research is needed to support data.



REFERENCES

- De Paolis, G., Naccarato, A., Cibelli, F., D'Alete, A., Mastroianni, C., Surdo, L., . . . Magnani, C. (2019). The effectiveness of progressive muscle relaxation and interactive guided imagery as a pain-reducing intervention in advanced cancer patients: A multicentre randomised controlled non-pharmacological trial doi:https://doi-org.cuhsl.creighton.edu/10.1016/j.ctcp.2018.12.014
- Jafari, H., Heylen, C., Vlaeyen, J., Van Den Bergh, O., & Van Diest, I. (2017). Beyond distraction? the effect of slow deep breathing on pain. *Biological Psychology*, 129, 381-381. doi:10.1016/j.biopsycho.2017.08.038
- Lucio, A., Laney, J., Lake, S., Kornblau, B., & Mbiza, S. (2018). Occupational Therapy Interventions for the Treatment of Pain. *The American Journal of Occupational Therapy*, 72(4), 7204190050p1-7204190050p9.
- Mehan, S., & Morris, J. (2018). A literature review of breathworks and mindfulness intervention. *British Journal of Healthcare Management*, 24(5), 235-241. doi:10.12968/bjhc.2018.24.5.235
- Solati, K. (2019). Effect of progressive muscle relaxation with analgesic on anxiety status and pain in surgical patients. *British Journal of Nursing*, 28(3), 174-178. doi:10.12968/bjon.2019.28.3.174