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Incorporating Functional Hand Assessments as Outcome Measures in Burn Rehabilitation: A Pilot Study

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Introduction

- Hand burns cause deformities and dysfunctions that affect how an individual is able to interact with their environment in a functional manner.
- Traditional methods of measuring hand function in the burn care setting include evaluating grip and pinch strength using a dynamometer and range of motion (ROM) using goniometric measurements, which provide valuable objective data, however it is also important to assess an individual's ability to perform functional tasks.
- There is currently no consensus that has been reached on the battery of tests best suited to determine the functional outcome of the burned hand.

Purpose

To incorporate the use of two hand function assessments, the Sollerman Hand Function Test (SHT) and the Brief-Michigan Hand Outcomes Questionnaire (bMHQ), in the outcomes measure protocol at a regional burn center for improving functional assessment and recovery progress tracking of burn injured hands.

Methods

Participants

Seven participants were included in this pilot study.

Inclusion criteria:

- 10 years of age and older with current admission to the Arizona Burn Center
- Primary diagnosis of partial thickness (2nd degree) to full thickness (3rd degree) burn injury, including at least one hand
- No restriction on TBSA or agent
- No surgical interventions conducted between assessment trials

Procedure

- Participants completed both the Sollerman Hand Function Test (SHT) and the Brief Michigan Hand Outcomes Questionnaire (bMHQ) at least 3 weeks post injury and again within 14-28 days after the initial assessment.
- Pain scores on a scale of 0 to 10 were verbally collected from each participant prior to beginning testing.
- All testing was performed at the start of the therapy session in a seated position with the SHT assessment performed prior to the bMHQ.

Results

- No significant correlation was found between the SHT score for the right hand and the bMHQ for both trials, however a significant correlation was found between the SHT score for the left hand and the bMHQ for both trials.
- Clinical significance was demonstrated through the ability to track patient progress and improvement over time with both the SHT & bMHQ.



Discussion

- bMHQ does not distinguish between left and right hands. This could lead to a skewed bMHQ score if a patient is considering use of their hands bilaterally, rather than focusing on the differences in ability of each hand.
- 6 out of 7 participants were right-handed with right hand burns > left hand burns. The left hand was functioning at a higher capacity resulting in higher SHT left hand scores which happened to correlate with the bMHQ scores.
- The sequence in which the assessments were given could also impact the bMHQ scores.

Limitations

- Limited eligible patients
- Lack of time to perform research – 14 weeks
- Small sample size (n=7)

Conclusion

- This study builds a foundation for incorporating functional hand assessments into the burn care setting, however a more in-depth study is warranted.
- Trends were observed in the data collected from this study that indicate the ability to track improvement over time, both subjectively and objectively, which is clinically significant.

Implications for Occupational Therapy

The information gathered from these assessments play a vital role in assisting therapists in determining how to best focus treatment plans and improve post-burn care treatments and rehabilitation. It is imperative to incorporate information gained from both objective and subjective standardized hand function assessments to provide the most effective patient-focused treatment and the SHT and bMHQ may prove to be valuable tools in that pursuit.

References Available Upon Request