ELSEVIER

Blood 142 (2023) 251–253

The 65th ASH Annual Meeting Abstracts

ORAL ABSTRACTS

901.HEALTH SERVICES AND QUALITY IMPROVEMENT - NON-MALIGNANT CONDITIONS

Novel Multidimensional Pain Assessment Tool Is a Feasible, Valid, and Enjoyable Approach to Communication of Pain Symptoms in Pediatric Sickle Cell Disease

Erica Mamauag, MD[1], *Charles R. Jonassaint, PhD MHS*[1], *Jude Jonassaint, RN*[1], *Li Wang*[2], *Nathan Matten, BS*[2], *Cheryl Hillery, MD*[3]

[1] University of Pittsburgh Medical Center, Pittsburgh, PA
[2] University of Pittsburgh, Pittsburgh
[3] Children's Hospital of Pittsburgh, Pittsburgh, PA

Background:
Pain is the most common symptom of sickle cell disease (SCD) and is especially difficult to assess in the pediatric population. Children have varied developmental stages and cognitive abilities making the communication of this subjective experience hard to operationalize. Both the assessment of pain and validation of these assessments is challenging.
No pediatric pain assessment tool has been deemed valid and reliable across all ages and types of pain. Commonly used pediatric tools include the Wong-Baker Faces scale, the numeric rating scale, and the visual analog scale (VAS), which combines the visuals of faces and numeric rating. These are unidimensional - only assessing the severity of pain, and in the case of faces, can cause confusion between pain severity and patient affect. In children with SCD, accurate pain assessment is crucial to current and lifelong management.
"Painimation" is a technology-based pain assessment tool that incorporates conceptual animations, rather than numbers or words, to characterize pain. These animations are intended to help clinicians better understand pain from the patient's perspective. They are dynamic and transcend language. For example, animations are designed to communicate dull pulsating pain, sharp electric pain, or anything in between. "Painimation" does not rely on verbal communication skills, making it ideal for use in the pediatric population. "Painimation" has been validated in adults with SCD and is currently in implementation trials. Our study aims to determine the feasibility and validity of "Painimation" in pediatric SCD.
Methods:
This is a single site non-randomized cross-sectional feasibility and validity study. Participants were 10 - 21 years old with SCD who presented to clinic in baseline health. Participants completed the Painimation application, which consists of a numeric pain rating scale (1-10), a front and back 2-dimensional body image that can be shaded to indicate areas affected by pain, and eight abstract animations intended to represent different pain qualities (tingling, shooting, stabbing, throbbing, pounding, cramping, electrifying, and burning). The patient chose up to three animations and the intensity of each chosen animation was adjusted using a sliding bar without numeric labels. The animations were presented to the patient without labeling the intended quality. The patients then completed a survey consisting of questions regarding the usability of Painimation, clinical questions regarding their disease, Lansky Play-Performance Scale, and validated patient reported outcomes questions (PedsQL, Ped-PRO-CTCAE, PROMIS).
Results:
We enrolled 30 participants between April 1 and July 31, 2023, with recruitment ongoing. Five records were incomplete and were not analyzed at this time. The mean ratings when asked whether 1) Painimation was easy to use, 2) the patient enjoyed using Painimation, and 3) the patient would use Painimation to communicate pain with their provider were respectively 3.28±.74 (SD), 3.08±.95, and 3.12±1.17 (scale 0-4), indicating a generally favorable result for feasibility. The median VAS score was 5.10 (IQR = 0.25, 8.25). Pain was most reported in the back lower chest (60%), front stomach (48%), and front chest (44%). The stabbing animation was the most chosen at 56% followed by the cramping animation at 20%. Electrifying and Cramping animations had the highest agreement with their intended McGill descriptors at 40%. VAS scores and Painimation severity scores demonstrated excellent positive correlation (Pearson r=.74).
Conclusion:
Painimation is a feasible pain assessment tool in pediatric SCD with high user satisfaction. Severity scores on Painimation correlate strongly with VAS scores. The pain characteristic conveyed by each animation adds unique dimensions to this measure

and will be further analyzed. Painimation is a novel pediatric pain assessment that holds the promise of greatly improving the communication of pain and transforming care in Pediatric SCD.

Disclosures Jonassaint: *Expressive Painimation:* Current Employment, Current equity holder in private company; *Agios:* Consultancy, Honoraria. **Jonassaint:** *Expressive Painimation:* Consultancy.

https://doi.org/10.1182/blood-2023-173878

Figure 2: Static version of the "stabbing" animation, one of the eight presented animations.

Figure 1: Graphical representation of the Painimation severity as chosen on an unlabeled sliding scale compared to VAS.

Figure 1