Centre de recherche
CHU Sainte-Justine
Le centre hospitalier universitaire mère-enfant

Université de Montréal

PROGRAMME DE STAGES D'ÉTÉ
Initiation à la recherche biomédicale
au Centre de recherche du CHU Sainte-Justine
Été 2019

Virtual reality compared to passive distraction for pain management during percutaneous pin removal procedures in children: A randomized controlled trial protocol

Numéro de l'offre de stage : No. 21

Équipe de recherche

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Description du projet

Background. Outpatient pediatric orthopedic procedures such as percutaneous pins removal are considered painful and generate significant anxiety in children. However, given their short duration and the need for a quick turnover in outpatient clinics, there are very few interventions aimed at relieving pain and anxiety related to these procedures. Children tend to apprehend pain and show signs of distress (cries, agitation, fear, anxiety) even before the procedure is initiated. Nonetheless, neither simple analgesia nor topical anesthetics proved effective for procedural pain reduction with this population. Moreover, narcotics and procedural sedation do not appear to be feasible alternatives as they require surveillance, prolonging visit to the outpatient clinic and generating several undesired side effects. Therefore, it would be imperative to explore non-pharmacological pain management methods as they require minimal preparation and do not usually generate any side effects.

Aim. To examine the effect of virtual reality (VR) compared to passive distraction, on pain, anxiety and memory of pain in children undergoing a percutaneous pin removal procedure in an outpatient orthopedic clinic.

Methods. The study is a prospective randomized controlled trial with parallel groups. Children from 7 to 18 years old, visiting the clinic for follow up and percutaneous pin removal procedure, accompanied by a parent or legal guardian will be recruited. The experimental group will receive a VR distraction through a head-mounted Oculus rift® and the control group will receive passive distraction through watching a video on an iPad®. The primary outcome will be the mean pain score after the procedure (self-report of pain level during the procedure) measured by the Numerical Rating Scale (NRS). Anxiety will be measured by the Child Fear Scale (CFS). Memories of pain and anxiety will be measured one week after the procedure using the same scales (NRS and CFS). We aim to recruit 88 children to achieve a power of 80% with a significance level (alpha) of 5%.

Discussion. We believe that results of this study will allow to improve pain and anxiety management practices in this orthopedic clinic by showing that non-pharmacological interventions can be done, at very low cost, to improve the experience of the child undergoing this painful procedure through an innovative and more humanistic approach.

Impact of project for traumatology at CHU Sainte-Justine. We believe that results of this study will allow to improve pain and anxiety management practices in this orthopedic clinic by showing that non-pharmacological interventions can be done, at very low cost, to improve the experience of the child undergoing this painful procedure through an innovative and more humanistic approach.

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Rôle de l'étudiant :

- Revue de la littérature extensive sur le sujet (pourrait faire l'objet d'un article de meta-analyse)
- Mise en place et gestion de la base de données pour le projet
- Recrutement des patients
- Collecte des données
- Aide pour les statistiques reliées aux questions de recherche
- Aide pour la rédaction d'un ou des article(s) découlant du projet

Mots clés

Réalité virtuelle/Virtual reality, Douleur/Pain, Anxiété/Anxiety, Étude randomisée contrôlée/Randomized controlled trial