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Pain management assessment in children with limb fractures in an emergency service☆

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ABSTRACT

Introduction: The tool most widely used for measuring the intensity of pain in children is the Faces Pain Score – Revised (FPS-R). Pain management depends on the level of care and the knowledge of the physician regarding dosing, indications and side effects of the medications available for use.

Objective: To assess pain management in patients 3–17 years of age with limb fractures using the FPS-R within the first 6 h.

Materials and methods: Observational cohort of patients 3–17 years of age presenting with limb fractures between October 2013 and January 2014. Patients with comorbidities associated with chronic pain were excluded. The tool was administered four times in accordance with the validated instructions – on admission, at first hour, at three hours and at six hours.

Results: Overall, 60 patients were assessed and 4 pharmacological regimens were identified: dipyrone alone (63.3%), combined therapy with dipyrone plus tramadol (10%), tramadol alone (8.3%), acetaminophen alone (6.6%).

The mean pain intensity reduction with the use of dipyrone was 1.7 points on the FPS-R within the first hour, with a mean reduction of 4 points by the end of the six hours of follow-up. With tramadol, pain reduction was 1.6 points and 4.6 points, respectively. The combined use of dipyrone plus tramadol did not result in significant pain reduction within the first hour.

Conclusion: Fracture immobilization is the mainstay for analgesia but it does not suffice as a form of pain management. Monotherapy with dipyrone or tramadol resulted in the best pain reduction, whereas the combined use of dipyrone plus tramadol was not better than the use of either medication alone.

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Evaluación del manejo de dolor en niños con fractura en extremidades en un servicio de urgencias

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RESUMEN

Introducción: El parámetro de medición de la intensidad del dolor en niños más usado es la escala revisada de caras de dolor (FPS-R). El manejo del dolor depende del nivel de atención y al conocimiento que el médico tenga respecto a la dosificación, indicación y efectos secundarios de los medicamentos disponibles.

Objetivo: evaluar el manejo de dolor en pacientes entre 3 y 17 años con fracturas de extremidades mediante escala (FPS-R) en las primeras 6 horas.

Materiales y métodos: Es una cohorte observacional, en pacientes entre 3 y 17 años con fracturas en extremidades, entre Octubre de 2013 y Enero de 2014. Se excluyeron pacientes con comorbilidades que impliquen presencia de dolor crónico. La escala se aplicó en cuatro ocasiones según las instrucciones validadas, al ingreso, a la hora, a las tres horas y a las seis horas.

Resultados: Se evaluaron 60 pacientes, identificando 4 esquemas farmacológicos: monoterapia con dipirona (63.3%), terapia conjugada de dipirona más tramadol (10%), monoterapia con tramadol (8.3%), monoterapia con acetaminofén (6.6%).

La dipirona logró en promedio disminuir 1.7 puntos en la FPS-R durante la primera hora, para el final del seguimiento a las 6 horas disminuyó en promedio 4 puntos en la escala; el Tramadol logró disminuir 1.6 puntos y 4.6 puntos respectivamente. La asociación Dipirona+Tramadol no logró disminución significativa de dolor en la primera hora.

Conclusión: La inmovilización de la fractura es el pilar de la analgesia pero no suficiente para el manejo del dolor. La monoterapia con dipirona o tramadol tuvieron los mejores resultados en cuanto a disminución de la intensidad de dolor, la combinación dipirona – tramadol no es mejor que la monoterapia.

Introduction

The National Association for the Study of Pain defines pain as "every unpleasant sensitive and emotional experience associated with real or potential tissue damage"; however, pain has not been studied at length in the paediatric population, not only because of the many baseless myths regarding painful sensations and neurological maturity of children or the types of medications used, but also because of the challenges associated with maturity of verbal expression and associative thinking.

The most widely used parameter for pain assessment in children, both in clinical practice as well as in research, is the measurement of pain intensity, validated by the Paediatric Initiative on Methods, Measurement, and Pain Assessment in Clinical Trials (Ped-IMMPACT).[1]

The various studies on pain measurements in children have been assessed by the Ped-IMMPACT group and by the working group of the Society of Paediatric Psychology based on empirical evidence and expert consensus. These groups have summarized the most relevant and valid techniques for measuring pain in children between 3 and 18 years of age, and have identified well-established pain intensity self-reporting[2] and psychometric-based observational measurements.[3]

Stinson et al.[2] identified 34 self-reporting measurements of pain intensity for children 3–18 years of age, six of which meet the criteria of a "well-established measurement" in accordance with the evaluation criteria developed by Cohen et al.[4] The latter reviewed a total of 8 self-reporting measurements commonly used for assessing pain intensity in children. There was agreement between the two groups regarding the fact that the Pieces of Hurt tool, the Faces Pain Scale – Revised, the Oucher scale and the Visual Analogue Scale were the best measurements available for clinical practice and research.

The Faces Pain Scale – Revised (FPS-R) uses facial expressions to assess pain intensity. From a set of faces representing different levels of intensity on a horizontal layout, the child is asked to select the face that best reflects his/her pain intensity.[5] This measurement is an adaptation of the Faces Pain Scale, which was revised in order to make it consistent with the common score from 0 to 10.

The original version consisted of seven faces and the new revised version consists of six, allowing a numerical value from 0 to 10 (0–2–4–6–8–10) to be assigned to each face. The scores on the two ends are explained as "no pain" or "a lot of pain".

There are several advantages of this scale over others that use faces. First, it does not include smiling and/or crying faces, which is relevant considering that scales ranging from smiling faces (no pain) to a crying face (a lot of pain) may be confusing in terms of the affective and sensitive components of pain.[6] Second, the scale intervals are equivalent and, thirdly, instructions have been translated to more than 32 languages.