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ORIGINAL ARTICLE

Analysis of analgesic, antipyretic, and nonsteroidal anti-inflammatory drug use in pediatric prescriptions☆

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KEYWORDS
Antipyretics;
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Abstract
Objective: Data on clinical practice in pediatrics on the use of analgesic, antipyretic, and nonsteroidal anti-inflammatory drugs considering the best available evidence and regulatory-agency approved use are uncertain. This study aimed to determine the frequency of prescription of these drugs according to the best scientific evidence and use approved by regulatory agencies.
Methods: This was a cross-sectional study of 150 pediatric prescriptions containing analgesic, antipyretic, and nonsteroidal anti-inflammatory drugs, followed by interview with caregivers at 18 locations (nine private drugstores and nine Basic Health Units of the Brazilian Unified Health System). The assessed outcomes included recommended use or use with no contraindication, indications with benefit evidence, and health surveillance agency-approved use. Data were analyzed in electronic databases and the variables were summarized by simple frequency.
Results: A total of 164 analgesic, antipyretic, and nonsteroidal anti-inflammatory drugs were prescribed to 150 children aged 1–4 years (38.6%). Dipyrone was included in 82 (54.6%) and ibuprofen in 40 (26.6%) prescriptions. Non-recommended uses were identified in 15% of prescriptions and contraindicated uses were observed in 13.3%. Nimesulide (1.5%) is still prescribed to children younger than 12 years. The dose was incorrect in 74.3% of prescriptions containing dipyrone. Of the 211 reported clinical indications, 56 (26.5%) had no evidence of benefit according to the best available scientific evidence and 66 (31.3%) had indications not approved by the regulatory agencies.
Conclusion: There are significant discrepancies between clinical practice and recommended use of analgesic, antipyretic, and nonsteroidal anti-inflammatory drugs in pediatrics.

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PALAVRAS-CHAVE
Antipiréticos;
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Pediatria;
Analgésicos

Análise do uso de analgésicos, antipiréticos e anti-inflamatórios não esteroides em prescrição pediátrica

Resumo
Objetivo: Dados sobre a prática clínica em pediatria no uso de analgésicos, antipiréticos e anti-inflamatórios não esteroides considerando a melhor evidência disponível e uso aprovado por agências reguladoras são incertos. Este estudo tem como objetivo verificar a frequência de prescrição de tais medicamentos segundo a melhor evidência científica e o uso aprovado por agências reguladoras.
Método: Estudo transversal de 150 prescrições pediátricas, contendo analgésicos, antipiréticos e anti-inflamatórios não esteroides, seguido de entrevista aos cuidadores, em dezoito locais (nove drogarias privadas e nove Unidades de Saúde do SUS). Os desfechos avaliados incluíram uso recomendado ou sem contraindicação, indicações com evidência de benefício e o uso autorizado por agências de vigilância sanitária. Os dados foram analisados em banco eletrônico e as variáveis sumarizadas por frequência simples.
Resultados: Foram prescritos 164 analgésicos, antipiréticos e anti-inflamatórios não esteroides para as 150 crianças com idade entre 1 e 4 anos (38,6%). Dipirona constou em 82 (54,6%) e ibuprofeno em 40 (26,6%). Usos não recomendados foram encontrados em 15% das receitas e usos contraindicados em 13,3%. Nimesulida (1,5%) ainda é utilizada em crianças com menos de 12 anos. Em 74,3% das prescrições contendo dipirona a dose estava incorreta. Das 211 indicações clínicas referidas 56 (26,5%) não tinham evidências de benefício segundo a melhor prova científica disponível, 66 (31,3%) eram indicações não aprovadas em agências de vigilância sanitária.
Conclusão: Existem importantes discrepâncias entre prática clínica e recomendações de uso de analgésicos, antipiréticos e anti-inflamatórios não esteroides em pediatria.

Introduction

In Brazil, as in other developing countries, regulatory policies and regulations on the sales and prescription of medications for the pediatric age range are still insufficient for the sector to be free of risks related to inadequate drug prescriptions and uses.

Analgesics, antipyretics and nonsteroidal anti-inflammatory drugs (NSAIDs) are the most often prescribed medications in the pediatric age group.[1] Predominantly naproxen, ketoprofen, and ibuprofen, which are over-the-counter (OTC) medications regulated by RDC No. 138/2003.[2] Nimesulide and other drugs of the same group, although not included in the OTC list, can be purchased in any pharmacy in Brazil without a prescription.

Although these drugs have potential adverse effects, they are widely sold in pharmacies, disregarding restrictions of use, indications, toxicity, and contraindicated drug interactions. They are often prescribed without a defined therapeutic goal, generating unnecessary costs.

For mild to moderate pain, in general, analgesics without anti-inflammatory effect (low-dose acetylsalicylic acid and ibuprofen, or paracetamol) should be prescribed. NSAIDs have similar efficacy, but their selection should consider relative toxicity, cost, and approved age group (based on safety and efficacy studies for the drug). NSAIDs have an ''all or nothing'' effect, i.e., increasing the dose does not increase therapeutic efficacy, but results in increased adverse effects.[3]

Although fever is a beneficial response in most cases, it is an important cause of anxiety for parents and physicians. The search for more efficient treatments has led to the use of antipyretic combinations in pediatrics, much appreciated by caregivers and healthcare professionals, but whose efficacy has been tested for only a few years in clinical trials.[4–6] The new schemes consist of combinations of ibuprofen and paracetamol administered at varying times. The main concern with these treatments is safety, as they may increase the risk of kidney toxicity and *Streptococcus* infection.[7,8] Therefore, it is not known whether these combinations are more effective than and as safe as monotherapy in children with fever.[6]

In developed countries, the indication of analgesics, antipyretics, and NSAIDs in pediatric patients is extremely limited. Currently, only two drugs are approved by the European Medicine Agency (EMEA) for the treatment of fever in children: paracetamol and ibuprofen.[9] Millions of euros have been spent to raise awareness among prescribers regarding the rational use of drugs, seeking to modify inadequate prescription criteria and habits.[10]

Drug prescription is a legal document, for which the person prescribing the drug (physician) and the person dispensing it (pharmacist) are responsible and subject to sanitary control and surveillance legislation.

Children are considered ''therapeutic orphans,'' due to lack of clinical studies with this population. The treatments are based on extrapolations of doses developed for adults. In practice, the drug is often used at indications, doses, and