EFICACIA Y SEGURIDAD TRATAMIENTO ANALGÉSICO EN ABDOMEN AGUDO EN NIÑOS: REVISIÓN SISTEMÁTICA Y NETWORK-METAANÁLISIS

STEPHANIA ARIAS RODRIGUEZ

Médico, estudiante de Maestría en Epidemiología Clínica. Departamento de Salud Pública, División Ciencias de la Salud.
Universidad del Norte

ASESOR: DR. JORGE LUIS ACOSTA.

Médico, Magíster en Ciencias Clínicas. Doctor en Epidemiología y Salud Pública.
Profesor Maestría en Epidemiología Clínica, Departamento de Salud Pública,

División Ciencias de la Salud**.**
Universidad del Norte

MAESTRÍA EN EPIDEMIOLOGÍA CLÍNICA
UNIVERSIDAD DEL NORTE
Barranquilla, mayo 2025

Resumen

Introduction: In children older than 1 year of age, acute appendicitis is the most frequent cause of surgical diagnoses, representing approximately 64% of these cases. Its incidence is higher between ages 12 to 17. Currently, few people still believe that children perceive pain differently from adults or that pain has no negative consequences; on the contrary, awareness has increased regarding the impact that even minimally painful procedures can have on the long-term emotional well-being of pediatric patients. Despite this, children still are at high risk of undertreatment of pain, known as oligoanalgesia. Consequently, pediatric patients receive less analgesia than adults under similar clinical conditions, with younger children receiving even less analgesia than older ones. Therefore, this study aims to evaluate and rank the efficacy and safety of analgesic agents through a systematic review with network meta-analysis, including both opioids and non-opioids, to inform clinical practice and reduce the gap between evidence and its application in pediatric emergency services. Methods: A paired and network meta-analysis (NMA) was conducted to compare the efficacy and safety of analgesics in pediatric abdominal pain. Odds ratios were estimated for dichotomous variables, and weighted mean differences with 95% confidence intervals were calculated for continuous variables. Heterogeneity was assessed using I^2, and overall consistency was evaluated using the "design-by-treatment" approach. Principles of transitivity and coherence were applied, and sensitivity analyses were performed, excluding studies with high risk of bias and those with imputed data. We presented the results using network and forest plots. The analysis was performed in R Studio v4.3.2. Outcomes evaluated included analgesic efficacy in children with acute abdomen receiving analgesia (opioids or NSAIDs) compared to placebo, measured by the Visual Analog Scale (VAS) for pain. Secondary outcomes were appendicitis complications, number of missed appendicitis cases, and medication side effects. Results: A total of 2121 records were identified, and after the selection process, five randomized clinical trials (n = 531) evaluating the efficacy and safety of analgesics in children with acute abdominal pain were included. The interventions included opioids (morphine, tramadol, oxycodone), NSAIDs (ketorolac), and paracetamol. The paired meta-analysis found that opioids significantly reduced pain compared to placebo on the VAS scale (MD: –0.97; 95% CI: –1.52 to –0.42; p = 0.0006). No differences were found in the incidence of complicated appendicitis (OR: 1.02; 95% CI: 0.52– 2.00) or missed appendicitis. However, opioid use was associated with a 6.55 times higher risk of adverse effects compared to the placebo group, representing a statistically significant association (95% CI = 1.14 to 37.76, p = 0.04). The network meta-analysis confirmed the superiority of morphine over placebo, while oxycodone showed no significant difference. Conclusion: The findings indicate that, compared to placebo, opioids are associated with a statistically significant reduction in pain. This reduction remained consistent in the network metaanalysis, where morphine was shown to be significantly more effective than placebo. Although oxycodone also showed a trend toward pain reduction, it did not reach statistical significance, and no relevant differences were found between morphine and oxycodone.