

PAIN MANAGEMENT FOR ACUTE PRIMARY HEADACHE IN A PEDIATRIC EMERGENCY DEPARTMENT: A RETROSPECTIVE STUDY

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Background. Headache is a common reason for pediatric emergency department (ED) attendance, but real-world data on analgesic use, dosing, timing and reassessment are limited. We evaluated acute primary headache management in a tertiary pediatric ED and factors associated with outcome at discharge.

Methods. We retrospectively included patients <18 years presenting with primary headache to the ED of Bambino Gesù Children's Hospital between January and December 2025. Secondary headaches were excluded. Demographic, clinical, diagnostic and treatment data were collected. Patients were grouped by headache status at discharge: unchanged, improved or resolved. Factors associated with outcome were assessed by bivariate analysis and ordinal regression.

Results. 471 patients were included: 267 (56.7%) were female and mean age was 11.2 years. Most were triaged as green (70.9%) or blue (25.7%). Associated symptoms were reported by 359 patients (76.2%), mainly phono/photophobia, nausea and vomiting. Brain CT was performed in 223 cases (47.3%) and hospital admission was required in 26 (5.5%). Only 166 patients (35.2%) received analgesic treatment in the ED, mainly ibuprofen, paracetamol or ketorolac; recommended weight-based dosing was achieved in 57 treated patients (36.7%). Headache reassessment was documented in 298 patients: pain was unchanged in 58 (19.5%), improved in 119 (39.9%) and resolved in 121 (40.6%). Treated patients were less frequent in the unchanged group. Higher ibuprofen dosage was independently associated with headache improvement in ordinal regression (OR 1.638, p=0.003), together with younger age (OR 0.894, p<0.001).

Conclusions. In this pediatric ED cohort, analgesic treatment, appropriate weight-based dosing and pain reassessment were suboptimal. Higher ibuprofen dosage was associated with better short-term outcome, supporting standardized, timely and adequately dosed analgesic pathways for children with acute headache.