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Predictors of severe asthma attack re-attendance in Ecuadorian children: a cohort study

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ABSTRACT Asthma is a common cause of emergency care attendance in low- and middle-income countries (LMICs). While few prospective studies of predictors for emergency care attendance have been undertaken in high-income countries, none have been performed in a LMIC.

We followed a cohort of 5–15-year-old children treated for asthma attacks in emergency rooms of public health facilities in Esmeraldas City, Ecuador. We collected blood and nasal wash samples, and performed spirometry and exhaled nitric oxide fraction measurements. We explored potential predictors for recurrence of severe asthma attacks requiring emergency care over 6 months' follow-up.

We recruited 283 children of whom 264 (93%) were followed-up for ⩾6 months or until their next asthma attack. Almost half (46%) had a subsequent severe asthma attack requiring emergency care. Predictors of recurrence in adjusted analyses were (adjusted OR, 95% CI) younger age (0.87, 0.79–0.96 per year), previous asthma diagnosis (2.2, 1.2–3.9), number of parenteral corticosteroid courses in previous year (1.3, 1.1–1.5), food triggers (2.0, 1.1–3.6) and eczema diagnosis (4.2, 1.02–17.6). A parsimonious Cox regression model included the first three predictors plus urban residence as a protective factor (adjusted hazard ratio 0.69, 95% CI 0.50–0.95). Laboratory and lung function tests did not predict recurrence.

Factors independently associated with recurrent emergency attendance for asthma attacks were identified in a low-resource LMIC setting. This study suggests that a simple risk-assessment tool could potentially be created for emergency rooms in similar settings to identify higher-risk children on whom limited resources might be better focused.