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Exploring the Relationship Between Helicobacter pylori Infection and Childhood Asthma: A Retrospective Analysis

Introduction: The prevalence of childhood asthma has been increasing in recent decades in Western countries, but the prevalence of Helicobacter pylori (H.pylori) infection has markedly declined. Many studies showed an inverse association between colonization of H.pylori and asthma in pediatric patients. Despite accumulating evidence of H.pylori's preventive effect on childhood asthma, there are limited studies assessing any potential consequences of eradicating H.pylori. In this study, we aim to assess the harmful effects of eradicating H.pylori in pediatric asthma patients.

Methods: Data analysis was conducted utilizing the TriNetX Network, which is a real-world data platform that consists of eighty-six healthcare organizations globally. We determined H.pylori infection, asthma, and asthma exacerbation events through ICD 10 diagnostic codes. The study population was divided into two groups (H.pylori treated vs H.pylori non-treated) according to the history of clarithromycin or metronidazole administration. The primary outcome measured was the frequency of asthma exacerbation events, while the secondary outcome was the prevalence of asthma. Using t-statistics, the mean asthma exacerbation rate between the two groups was assessed.

Results: 1,260 subjects with asthma and H.pylori infection (756 with treated history vs 504 with no-treated history) were identified. Mean asthma exacerbation in the two group were 6.065 and 1.471 (t-value 0.741, df 64, p-value 0.463). The prevalence of asthma in H.pylori infected population was 19.9% (74.3% occurred before H.pylori infection and 21.6% after H.pylori infection).

Conclusion: This retrospective study from nationwide data suggests H.pylori eradication may exacerbate asthma. Moreover, given the majority of asthma was developed before H.pylori infection, the study proposes the protective role of H.pylori against asthma acquisition. Further investigations are warranted to elucidate the underlying mechanism of this phenomenon.