EARLY LIFE PARACETAMOL AND ANTIBIOTIC EXPOSURE AND RISK OF ATOPIC DISEASES IN CHILDHOOD

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Background: Strong epidemiological evidence exists showing that early paracetamol and antibiotics administration leads to an increased risk of asthma and allergies in children. Various hypotheses have been presented regarding the mechanisms of those associations. Antibiotics are believed to alter the natural balance of microbial flora leading to a higher susceptibility to allergic sensitization. Paracetamol proposed pathogenesis theory, links it with an enhanced Th2 response, decreasing of the protective effect of fever on asthma and lowering the levels of gluthathione an antioxidant that protects the tissue from oxygen radicals. Prospective data, however, showed contradictory results. **Objective:** The aim of this study was to verify weather the association between the early administration of paracetamol and antibiotics causing higher risk of atopic diseases in children, can be found in the population of Coimbra, Portugal. **Methods:** Cross-sectional study of 1063 children from 1st and 2nd grade of primary schools in Coimbra was run between October 2011 and June 2012. ISAAC (The International Study of Asthma and Allergies in Childhood) based environmental and core asthma and rhinitis questionnaires were used to obtain information about children's health and administration of paracetamol and antibiotics in the early life. Chi-square test, binary and multinominal logistic regression were used to calculate the associations between the respiratory symptoms and medications use, and to estimate the risk for symptoms development. **Results:** Early paracetamol use significantly increased the risk of asthma ever (at least one episode in life) (OR 2,851), current asthma (OR 2,362), wheezing ever (at least one episode in life) (OR 2,362), rhinitis ever (at least one episode in life) (OR 2,372) and current rhinitis (OR 2,754). Antibiotic exposition showed a similar effect with the risk for current asthma (OR 1,596), asthma ever (OR 1,963), wheeze ever (OR 2,326), and all the rhinitis symptoms (OR 1,836, OR 1,808 for rhinitis ever, current rhinitis and tearing). In the case of the paracetamol use in the last year we found a dose dependent association with the risk of current asthma, OR 1,470 for children taking paracetamol at least once in the last year and OR 3,341 for those taking at least one per month. **Conclusion:** Our study showed a strong association between the exposition to paracetamol and antibiotics in the first 12 months of life and both prevalence and severity of the asthma symptoms in children with 5 to 9 years old. Those results go in line with other epidemiological data, although confounding by indication or reverse causation cannot be excluded.