

## **Precipitating factors of acute severe asthma among children of 3-15 years: A descriptive cross-sectional study**

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Despite a better understanding of pathophysiology and novel treatment modalities, children presenting with acute exacerbation of asthma (AEA) are still common. Descriptive information on asthma and factors precipitating AEA would provide a better understanding of the reasons for AEA. The present study aimed to identify such factors in a cohort of children in Sri Lanka. A descriptive cross-sectional study was conducted at the Teaching Hospital, Ragama, Sri Lanka involving children between 3-15 years. The sample consisted of 100 children admitted with AEA. Events that led to AEA were obtained from the mother. Data were obtained using a questionnaire from parents/guardians/children and analyzed using R-statistical software. Around 80% of the recruited children were in the 5-10-year range, and there was no significant gender difference. Of the descriptive data, potential risk factors identified for AEA were indoor smoking 12%, use of mosquito coils 28%, use of joss sticks 43%, and specific foods such as goat milk, yogurt, curd, ice cream, etc.-30% and use of firewood for cooking 39%. Regarding the risk factors for AEA, the intake of specific foods was significantly higher in association compared to indoor smoking ( $P=0.011$ ). Sixty-six children had a full blood count which showed leukocytosis in 33.4%, neutrophilia in 62.1%, lymphocytosis in 6.1%, and eosinophilia in 9.1%. Neutrophilia was significantly higher compared to lymphocytosis ( $P=0.000$ ) and eosinophilia ( $P=0.000$ ) in the study cohort. CRP was available in six patients, of which three had increased levels. Blood cultures were available in 11 patients, but all were negative. None of the children had a microbiological diagnosis. Of the 21 children who underwent chest x-rays, only one had evidence of pneumonia. Fifty-two percent of children presenting with AEA were on regular inhaler therapy. Identified main risk factors for EOA were indoor smoking and burning of Joss sticks or firewood. In nearly one-third of the patients, food items were the precipitating factor. Though respiratory tract infections are implicated as a major cause of AEA, only a smaller percentage had evidence of infections. This may be because routine microbiological investigations were not employed. More than half of the children presenting with AEA were on regular inhaler therapy raising the question of the appropriateness of the medication used and the compliance with treatment.

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