

Methodological Issues in Association of Allergic Rhinitis and Sinusitis with Childhood Asthma

We read with interest the recent study in Indian Pediatrics by Chinnakkannan, *et al.* [1] on the above subject. There are certain methodological issues that we would like to raise. First, the children (<13 years) with asthma presenting first time to the clinic were included, but there was no mention of the basis of their diagnosis – whether based on history and clinical features only or combining them with spirometry. Second, there was no mention of sampling technique used for recruiting the participants for the study. It was probably a convenient sampling. Further there was no mention about sample size calculation and minimum required sample as authors were also trying to find the prevalence of the two conditions (allergic rhinitis and sinusitis) in children with asthma, and enrolment of minimum required sample is necessary for validity of the findings [2]. Third, the authors have mentioned that they have used multiple logistic regression model to determine the independent factors associated with asthma severity. However, it was not mentioned that in how many groups or categories the children were categorized based on asthma severity. Hence, it was not clear whether a binary logistic regression or ordinal logistic regression model was applied. Lastly, authors mentioned that use of computed tomography (CT) scan for diagnosis of sinusitis in the study might have led to lower estimate of the prevalence. However, it would have been better if they had mentioned the proportion of clinically suspected sinusitis cases having positive findings in CT scan and those not having any findings in CT.

MD BASHAR AND KAMAL KISHORE
*School of Public Health,
 PGIMER, Chandigarh, India.
 dr.bashartheultimate86@gmail.com*

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Author's Reply

We are thankful to the reader for raising some issues for discussion regarding the association of allergic rhinitis (AR) and sinusitis with childhood asthma [1].

First, regarding the diagnosis of asthma and use of spirometry, it has already been mentioned in the paper that asthma was diagnosed based on history and clinical examination as per the National Asthma Education and Prevention program II (updated 2002). Spirometry is not a diagnostic modality for asthma, and was not used in this study.

Second, regarding the sampling technique, considering the cross-sectional nature of the study to find out the point prevalence of AR and sinusitis in childhood asthma, asthma cases visiting first time to the clinic were enrolled. As the children visiting to the clinic randomly (without choice/selection of the investigator), it fits into probability sampling. The main objective of the study was to find the association of AR and sinusitis in children with different type of asthma severity. A formal sample size calculation was not made as there was no previous study on sinusitis employing the CT scan criteria for diagnosis in asthmatic children. As described earlier, sample size calculation may be prone to error if choices of parameters for calculation are not proper [2].

Third, it has been already mentioned in the paper, for severity determination, persistent asthma (mild and moderate) was made as one group, as a result binomial logistic regression was applied.

Fourth, regarding the diagnosis of sinusitis, it was already mentioned in the paper that all the five children with clinical suspicion of sinusitis were having sinusitis confirmed on CT scan. We did not perform CT scan in children having no clinical suspicion of sinusitis.

MEENU SINGH AND RASHMI RANJAN DAS
*Department of Pediatrics,
 PGIMER, Chandigarh, India.
 meenusingh4@gmail.com*

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