Reviewer's report

Title: Increased prevalence of asthma and other allergic conditions in Colombia

Version: 2  Date: 29 August 2011

Reviewer: Manuela De Sario

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Major Compulsory Revisions

1) Study design: The sampling strategy is complex and similar to a previous study by the same authors (Dennis R, et al. Annals of Allergy, Asthma & Immunology 2004, 93(6):568-74). The main problem is that the community-based strategy was not random. Furthermore, the low response rates further limit inference. It’s worth if authors can add a comparison of demographic and socio-demographic characteristics of the study subjects with the source population in the six cities to check for possible selection bias. Elsewhere, it could be interesting whether they provide at least which proportion of resident population the participating subjects are, for each city and age group considered.

2) Study population: The study aims to provide prevalence estimates valid for the population up to 59 years of age living at home. An important point is the inclusion of preschool children; I advise authors to discuss that respiratory viral infections have an important part to play in the production of wheeze in this age group and asthma diagnosis is difficult. With regard to control selection in the nested case-control study, I ask to the authors to discuss if the restriction to people without allergic rhinitis and atopic eczema may have reduced the prevalence of the exposure in the controls below that in the source population of cases, biasing the results (Rothman KJ, Greenland S, Lash TL. Modern Epidemiology, third edition, Chapter 8, Case-Control Studies). Finally, I suggest to motivate why people with mental problems were excluded.

3) Data collection: The study uses serum IgE analysis against two allergens as authors stated due to budget restrictions. Authors should discuss other allergens of potential interest in the study population.

4) Statistical analysis: The analysis is based only on prevalence comparisons. If possible, I ask authors to adjust pooled prevalence for possible confounders (i.e. age, gender, city??). Can cities be characterized in terms of demographic and socioeconomic indicators? If yes, please include these variable stratifying or adjusting for. What was the proportion of missing data? Were the missing answers included or excluded in the prevalence computation?

5) Results: Authors identify some heterogeneity by age groups, gender and cities; how this heterogeneity was evaluated (i.e. homogeneity test)? Please check comments about heterogeneity, because authors state “The prevalence of AE symptoms in the last 12 months varied little between cities or by age group” (page 9), while I see a pattern similar to that observed for asthma (page 8).
Overall, authors found greater prevalence in children than in adults but they did not discuss this results. Between age groups there are differences in risk factors, lifestyles and environmental exposures (i.e., occupational exposures) (Subbarao P. CMAJ 2009 DOI:10.1503/cmaj.080612); I advise to add this point to discussion. I noted there is a striking difference between prevalence from symptoms recording and from physician diagnosis; I advise to discuss possible explanations. Please clarify the numbers and percentages in the third column of table 7 (page 26).

6) Discussion: The study shows in Colombia the prevalence of asthma and allergic conditions is quite high. I suggest to provide an international comparison (especially with respect to other developing countries) and to discuss differences and search for explanations (i.e. maternal smoking, mould in household, education level, occupational and environmental exposures). Authors discuss the increase was greater for AR than for asthma but provide a reference from a Chinese study. Please add more references. As authors state results may not be extrapolated to children not attending school or living in rural dwellings in Colombia. Which is in Colombia the proportion of children not attending school? Results of high prevalence of IgE exposure in controls and the “helminths hypothesis” are very interesting but authors should recognize results are possibly biased due to the selection bias as stated above. It can be of interest if authors cite data supporting the hypothesis of a protective effect of helminth exposure on asthma and discuss possible sources of exposures in their study population.

Minor essential revisions

Background: Authors should better define the study question providing more background about the time trend in prevalence worldwide and in developing countries, and possible explanations of geographical patterns. I also advise to provide some demographic, socioeconomic and health data for Colombia and to compare them with other Latin America countries.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests