J Bras Pneumol. 2018;44(5):341-342
http://dx.doi.org/10.1590/S1806-37562018000050004

Epidemiology of asthma: it is necessary to expand our concepts

Maria Alenita de Oliveira[1,2,a]

The knowledge on the epidemiology of diseases, based on data on morbidity and mortality, is important, because it allows to create public health policies for disease prevention and to promote investment in key areas in order to improve health care indicators.

In epidemiological studies that evaluate asthma morbidity and mortality, two large databases, which were brilliantly described in an editorial published in the JBP by Stelmach and Cruz.,[1] have been available for the population in Brazil. One of these databases, from the *Departamento de Informática do Sistema Único de Saúde* (DATASUS, Information Technology Department of the Brazilian Unified Health Care System), allows the correlation of data in order to demonstrate the trends regarding mortality and morbidity in the various regions of the country, specified by the municipalities. The second database is provided by the *Instituto Brasileiro de Geografia e Estatística* (IBGE, Brazilian Institute of Geography and Statistics), which allows the analysis of data in a geographical perspective, according to the regions, allowing the classification of urban and rural populations.

The statistical agencies generally adopt two criteria for the classification of urban and rural areas: the political-administrative criterion, adopted until recently in Brazil, and the demographic index, adopted in other parts of the world, such as Australia and the European Union.[2]

In the present edition of the JBP, the article by Brito et al.[3] analyzed regional data on asthma mortality in the period between 1980 and 2012. For the analysis of the data, urban and rural areas were defined considering population size, population density, and degree of urbanization, as proposed by Veiga et al.[4]; IBGE adopted this definition in 2017, replacing the political-administrative method, which was adopted in previous studies. The authors[3] found a reduction in the mortality rate during the study period, which was similar to the results of previous studies,[4-6] as well as a predominance in females.

In relation to the analysis by urban and rural areas, the study of Brito et al.[3] showed a trend toward a decrease in mortality from asthma in large municipalities; however, there was an increase in asthma mortality in small and medium-sized municipalities. In relation to rural areas, an increase in asthma mortality was found when compared with that in urban areas, in disagreement with the results found in a study by Ponte et al.,[7] in which urbanization was associated with higher asthma morbidity and mortality.

The influence of geographic variations on asthma morbidity is important to improve our understanding of the disease so that interventions to reduce its impact can be developed. Factors, such as indoor and outdoor pollution, exposure to allergens, socioeconomic status, and access to health care services, might interfere with morbidity and mortality.[8,9]

One of the examples reported in the article by Brito et al.[3] is the significant bias caused when we classify a municipality as a participant of a metropolitan area, because it results in a population profile with greater access to health care services. The old classification system, which did not take into account demographic density, could consider some municipalities with small populations but close to large centers as rural municipalities.

Having increased access to health care services is recognized as a factor that reduces morbidity and mortality; in recent years in Brazil, the Family Health Program has provided greater access to health care services for the general population, which might explain the results presented in the study by Brito et al.,[3] since there is greater access to these facilities in areas with higher population density.[10] However, the increase in mortality in rural areas might be associated with factors such as socioeconomic status, limited access to medications, or even a greater number of cases diagnosed with asthma, and, consequently, identifying a greater number of asthma-related deaths due to the amplification of the health care network.

The methodology of epidemiological studies, the need for studies that analyze asthma indicators by differentiating between urban and rural areas, and the mechanisms that influence these indicators should be carefully reflected upon, so that health care policies are stimulated to reduce asthma mortality.

REFERENCES

1. Stelmach R, Cruz ÁA. The paradox of asthma: neglect, burden, and big data. J Bras Pneumol. 2017;43(3):159-160. https://doi.org/10.1590/s1806-37562017000300002
2. Instituto Brasileiro de Geografia e Estatística. Classificação e caracterização dos espaços rurais e urbanos do Brasil: uma primeira aproximação. Rio de Janeiro: IBGE; 2017. 84p.
3. Brito TS, Luiz RR, Lapa e Silva JR, Campos HS. Asthma mortality in Brazil, 1980-2012: a regional perspective. J Bras Pneumol. 2018;44(5):354-60.
4. Veiga JE. Cidades Imaginárias. Campinas (SP) : Autores Associados; 2002.

1. Centro Universitário de João Pessoa – UNIPÊ – João Pessoa (PB) Brasil.
2. Universidade Federal da Paraíba – UFPB – João Pessoa (PB) Brasil.
a. http://orcid.org/0000-0002-1009-6988

5. Graudenz GS, Carneiro DP, Vieira RP. Trends in asthma mortality in the 0- to 4-year and 5- to 34-year age groups in Brazil. J Bras Pneumol. 2017;43(1):24-31. https://doi.org/10.1590/s1806-37562015000000253
6. Cardoso TA, Roncada C, Silva ERD, Pinto LA, Jones MH, Stein RT, et al. The impact of asthma in Brazil: a longitudinal analysis of data from a Brazilian national database system. J Bras Pneumol. 2017;43(3):163-168. https://doi.org/10.1590/s1806-37562016000000352
7. Ponte EV, Cruz AA, Athanazio R, Carvalho-Pinto R, Fernandes FLA, Barreto ML, et al. Urbanization is associated with increased asthma morbidity and mortality in Brazil. Clin Respir J. 2018;12(2):410-417. https://doi.org/10.1111/crj.12530
8. Jie Y, Isa ZM, Jie X, Ju ZL, Ismail NH. Urban vs. rural factors that affect adult asthma. Rev Environ Contam Toxicol. 2013;226:33-63. https://doi.org/10.1007/978-1-4614-6898-1_2
9. Wright RJ, Subramanian SV. Advancing a multilevel framework for epidemiologic research on asthma disparities. Chest. 2007;132(5 Suppl):757S-769S. https://doi.org/10.1378/chest.07-1904
10. Alfradique ME, Bonolo Pde F, Dourado I, Lima-Costa MF, Macinko J, Mendonça CS, et al. Ambulatory care sensitive hospitalizations: elaboration of Brazilian list as a tool for measuring health system performance (Project ICSAP–Brazil)[Article in Portuguese]. Cad Saude Publica. 2009;25(6):1337-49. https://doi.org/10.1590/S0102-311X2009000600016