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Editorial

## Analysing the economy: asthma is changing

## Analizando la economía, algo está cambiando en el asma

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The current global economic crisis has also affected health professionals. The economic impact, therefore, that diseases have on society is an issue of paramount importance. Currently, these communal health aspects go beyond the actual health systems, for instance, the upcoming political debate concerning the financial cost assumed by society for the social welfare state, specifically that of universal health protection. The economic evaluation of the most prevalent disorders is necessary to help health authorities know the reality of diseases and to establish working hypotheses that allow for a greater allocation of resources, which, for obvious reasons, are limited.<sup>1</sup> These types of study are also necessary for health professionals, since they would require them to be more careful when making diagnostic and therapeutic decisions.

The high prevalence of and the progressive increase in the rate of respiratory diseases, particularly asthma, in industrialised countries have transformed asthma into a serious problem, which is not only health related but also economic: it is estimated that the health expense incurred by the medical care and treatment of asthma in industrialised countries ranges between 1% and 2% of the total health expenditure.<sup>2-4</sup> The recognition of the economic impact that asthma has on society is considered as an additional problem which needs to be taken into account when choosing the complete approach for this disease in the latest international consensus and the guidelines of the Spanish Society of Pulmonology and Thoracic Surgery (SEPAR).

Pharmacoeconomics is one of the most interesting points in the evaluation of health resources, although it cannot be separated from the rest of the economic measures involved when caring for patients with asthma. From a pharmacoeconomic point of view, it is interesting to know, for example, the proportion of the patients responsible for the cost of this disease. According to studies carried out, the prevalence of asthma in Spain greatly varies between areas, ranging between 1% and 15%. These differences mainly depend on the methodology used to establish the diagnosis of the disease.<sup>5,6</sup> It is expected that the economic impact of asthma will increase over the following years as a consequence of the rise in people's life

expectancy, the rise in prevalence and the appearance of new medicines and therapeutic modalities.

When evaluating the costs incurred by a disease, these are subdivided into three major sections according to their nature: direct costs, indirect costs and intangible costs.

Direct costs are incurred by resources consumed, including medicines, visits to doctors or health centres, such as the emergency department, hospitalisations and the cost of diagnostic methods and follow-ups carried out, such as function tests, X-rays and analyses. Indirect costs are related to lost resources, including money spent or not earned due to sick leaves, invalidities, early retirements and premature deaths. Intangible costs are linked with unattained potential profits due to the emotional impact and the loss of the quality of life caused by the disease to patients or their families, for example, when someone needs to leave his or her job to accompany a family member to the doctor.

Direct costs are the easiest to quantify, given their condition, while indirect and intangible costs are the most difficult. Indirect costs depend, to a large extent, on the labour market and the social protection in each area. Intangible costs are even more difficult to measure, given their little quantifiable nature, so much so that in the majority of studies published, intangible costs are either not quantified or are added to the indirect costs.

A bibliographic review on this issue reveals that there are few studies on pharmacoeconomics, although it is true that over the last ten years their number has been on the rise. However, the majority of these studies only quantify direct costs, or even a part of them, such as pharmaceutical expenses, thus providing an extremely partial view of the issue. Comparative studies are difficult to carry out, since the cost of asthma varies from country to country due to existing cultural, political, labour and economic differences and, above all, due to differences in the organisation of health systems in different countries that have published their data.

The first authors dealing with this issue a few years ago were Weiss et al.<sup>2</sup> in an article published in *The New England Journal of Medicine* in 1992, in which they showed that 1% of the health expenses in the USA were incurred by the treatment of asthma. Since then, other studies have been carried out in different industrialised countries, in which different methodologies have been used. In the

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majority of these studies, the sources of analysis are data contributed by the corresponding public health organisations of these countries, while other studies contain data provided by actual patients. The recognition of the economic impact on society has even been reflected in the latest international consensus as another additional problem of the disease, which must be considered when administering a treatment. For example, a chapter is dedicated to this issue in the 1995 and 2002 international consensus documents of the Global Initiative for Asthma (GINA) when considering that "... the implementation of effective strategies in the treatment of asthma reduces both morbidity and health costs...", thus indicating that the best way to reduce the overall cost of the disease is to achieve adequate control of asthmatic patients.<sup>7</sup> Moreover, the 2003 Spanish Guidelines for Asthma Management (GEMA)<sup>8</sup> give importance to this aspect when indicating the need for health professionals to know that good asthma management includes taking into account its cost. Cost should be taken into account, not to give it primary status, but to consider it in a manner in which all health professionals interested in asthma should be aware of its relevance so as to manage it well. To emphasise this fact, the guidelines mention that 70% of the overall cost of the disease is incurred by its bad control, indirect costs and, partially, its direct costs, such as hospitalisation, visits to the emergency department or death, which are the main reasons for the consumption of economic resources due to asthma.<sup>8</sup>

In 1996 Barnes et al.<sup>9</sup> reviewed nine studies on the cost of asthma in various industrialised countries and tried to shed light on the components of the expenses associated with this respiratory disorder. They observed that the indirect costs exceeded 40% of the total amount in most of the studies evaluated. Concerning direct costs, the pharmacological cost represented the largest percentage, which surpassed 40% of these costs, followed by those patients referred from the emergency department and hospital admissions, which constituted approximately 30%, and the cost from the loss of work that represented approximately a fourth of the total amount in these countries.

The data available on the economy of asthma in Spain are scarce. Some of these data provide partial analyses that only consider, for example, hospital costs.<sup>10</sup> To date, the only study on full costs found in the bibliography was carried out in 1994 by our group in a region of the province of Barcelona (Osona) and was published in 1996.<sup>11</sup> The abovementioned study showed that direct costs constituted a third of the total amount, while indirect costs (sick leaves and injuries) represented the other two thirds. It also showed that medicines represented 45% of direct costs and only 19% of the total cost, while indirect costs were mainly incurred by severe asthma, since its cost was higher than that of mild and moderate asthma at a ratio of 4 to 1. These results did not differ greatly from the costs displayed by other countries in that period. We also showed that when asthma control was better, the expenditure in direct costs was lower. In effect, the cost incurred by well-controlled asthmatics was an average of ?550 per patient and year, ?746.3 for asthmatics with little control of their disease, and ?1,451.3 for patients with bad control of the disease.

The article published in this issue of the *Broncho-Pneumology Archives* by Martínez-Moragón et al.<sup>12</sup> described a prospective study carried out with asthmatic patients for a year, the purpose of which is similar to that of the abovementioned study carried out by our group, thus comparable with the latter. Thirty-eight pneumologists from the entire Spanish territory contributed to the Martínez-Moragón et al. study, which included 627 patients equally divided into the four severity levels of the disease. Fifteen years after the previous study, the result concerning costs is similar or even somewhat inferior (that is, ?1,726 compared with ?1,964 of our study). Currently, the expenditure on medicines represents 32%, compared with the previous 19%. Indirect costs have decreased dramatically, that is, within fifteen years the largest part of asthmatics

who rely on medical examinations are better controlled, or they at least have fewer sick leaves and infrequent invalidities due to asthma. This constitutes a substantial change in the treatment of asthma over the last years, since it has led to a decrease in hospitalisations. This decrease appears to compensate for the increase in expenses incurred by medicines, thus allowing for a substantial reduction in the overall expenditure. This is because there is a drop in indirect costs incurred, among others, by invalidities or sick leaves, which in our study represented two-thirds of the total cost of asthma and 11% of its total cost in the Martínez-Moragón study. This change over a twenty-year period (with a decrease in the number of asthmatics admitted to hospitals or cared for at the emergency department) represents an economic benefit for the country, as well as a fundamental change in the patient's quality of life. What was similar between that study and ours is that a small group of patients, comprising those over 65 years of age and severe asthma sufferers, are still those who consume more health resources – a data point that agrees with other data recently published in other similar countries, such as Italy and France.<sup>13,14</sup>

It is worth emphasising that these studies show that the expenses incurred by asthma constitute an important economic burden for industrialised countries, since asthma consumes a significant part of the total amount of resources used for public health. Nevertheless, this expense can be controlled and even reduced if the disease is stabilised with an adequate use of the medicines available. Approximately 70% of the total cost of the disease is determined by its bad control and management (the majority of indirect costs), so that a greater use of preventative anti-inflammatory medication, the improvement of education of asthmatics and a suitable follow-up of the recommendations of the scientific societies, as well as the latest GEMA recommendations (2009),<sup>15</sup> are measures that can be advantageous for a greater control of the disease and a decrease in the associated costs. The analysis of the progress of the health expenditure incurred by asthma can serve as valid means to evaluate the effectiveness of new therapies and the approach put forward by experts in the guidelines.

This type of studies, similar to the one found in this journal, will also allow for the design of strategies to control health expenses concerning asthma. This is because they show that the best ways to control its increase is by paying close attention to the patient and by making good use of medicines, since a well-controlled asthmatic patient spends less. Furthermore, the good management and control of our asthmatic patients will allow them to make better progress and to have a higher quality of life. In other words, it is cheaper to do it well than badly.

## References

- Miravittles M, Figueras M. El coste de la enfermedad pulmonar y obstructiva crónica en España. Opciones para una optimización de recursos. Arch Bronconeumol. 2001;37:388-93.
- Weiss KB, Gergen PJ, Hodgson TA. An economic evaluation of asthma in the United States. N Engl J Med. 1992;326:862-6.
- Bousquet J. A physician's view on health economics in asthma. Eur Respir Rev. 1995;5:275-8.
- Kiivet RA, Kaur I, Lang A, Aaviksoo A, Nirk L. Cost of asthma treatment in Estonia. Eur J Public Health. 2001;11:89-92.
- Grupo Español del Estudio Europeo de Asma. Estudio Europeo del Asma. Prevalencia de síntomas relacionados con el asma en cinco áreas españolas. Med Clin (Barc). 1995;104:487-92.
- Grupo Español del Estudio Europeo del Asma. Estudio Europeo del Asma. Prevalencia de hiperreactividad bronquial y asma en adultos y jóvenes de cinco áreas españolas. Med Clin (Barc). 1996;106:761-7.
- Global Initiative for Asthma. Global Strategy for Asthma Management and Prevention NHLBI/WHO Workshop Report. 2002. Available at: <http://www.ginasthma.com>.
- Plaza V, Álvarez FJ, Casan P, Cobos N, López A, Llauger MA, et al, en calidad de Comité Ejecutivo de la GEMA 2003 y en representación del grupo de redactores. Guía española para el manejo del asma 2.3. Impacto socioeconómico. Available at: [www.gemasma.com](http://www.gemasma.com).
- Barnes PJ, Jonsson B, Klim J.B. The cost of asthma. Eur Respir J. 1996;9:636-42.

10. Borderías Clau L, Zabaleta Murguiondola M, Riesco Miranda JA, Pellicer Ciscar P, Hernández Hernández JR, Carrillo Díaz T, et al. Coste y manejo de una crisis asmática en el ámbito hospitalario de nuestro medio (estudio COAX en servicios hospitalarios). Arch Bronconeumol. 2005;41:313-21.
11. Serra-Batlles J, Plaza V, Morejón E, Comella A, Brugués J. Cost of asthma according to the degree of severity. Eur Resp J. 1998;12:1322-6.
12. Martínez-Moragón E, Serra-Batlles J, De Diego A, Palop M, Casan P, Rubio-Terrés C, et al, Grupo de investigadores del Estudio Asma-Cost. Ojo falta título. Arch Bronconeumol. 2009; cruzada
13. Antonicelli L, Bucca C, Neri M, De Benedetto F, Sabbatani P, Bonifazi F, et al. Asthma severity and medical resource utilization. Eur Respir J. 2004;23:723-9.
14. Godard P, Chanez P, Siraudin L, Nicoloyannis N, Duru G. Costs of asthma are correlated with severity: a 1-yr prospective study. Eur Respir J. 2002;19:61-7.
15. GEMA. Guía Española para el Manejo del Asma. 2009. Available at: [www.gemasma.com](http://www.gemasma.com).