

## Economic Burden of COPD in Japan

JMAJ 54(2): 110–111, 2011

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An increase in the severity of chronic obstructive pulmonary disease (COPD) with aging causes advanced dyspnoea and exercise intolerance, leading to significantly reduced quality of life (QOL) and activities of daily living (ADL) in patients with COPD. Moreover, the patients with severe COPD frequently experience repeated exacerbations, resulting in repeated hospital admissions. Based on these facts, it has been pointed out that COPD does not only cause the reduced ADL and QOL in each COPD patient, but it also increases cases of inpatient hospitalizations among the total COPD patients, which leads to high medical expenditures in the national healthcare budget.

So far, investigations on economic impact of COPD have been mainly conducted in the North America and Europe. In 2002, a large-scale international survey called Confronting COPD Survey in North America and Europe was conducted in 7 countries (USA, Canada, France, Italy, the Netherlands, Spain, and UK). The economic analysis of the results demonstrated that the total annual cost associated with COPD per patient in each of the surveyed country ranged from \$1,023 in the Netherland to \$5,646 in the US.<sup>1</sup> The differences in economic situations and healthcare systems among the surveyed countries are being reflected in the per patient cost, but it is expensive nonetheless. It was also reported that inpatient hospitalizations occupied the majority of the cost.

In Japan, Nishimura et al. (2004)<sup>2</sup> estimated the national total annual expenditure associated with moderate to severe COPD to be 805.5 billion yen (\$9.59 billion\*) using published statistics. The annual cost per patient with moderate

to severe COPD was estimated to be 435,876 yen (\$5,189\*), which is equivalent to that of the US in the aforementioned international survey. According to a report prepared by the Japanese Ministry of Health, Labour, and Welfare, the annual medical expenditure associated with COPD in the nation was 162.5 billion yen (\$1.93 billion\*) in Fiscal Year 2006,<sup>3</sup> which was almost 1/5 of the figure reported by Nishimura et al. This discrepancy indicates the possibility that the government figures in the past reports have been underestimating the medical costs.

A fairly high percentage of the national medical expenditure associated with COPD is due to inpatient hospitalization costs, the most of which are attributable to acute exacerbations of COPD. The cost analysis of the aforementioned international survey indicated that 40–57% of the direct medical cost was associated with acute exacerbations of COPD, and that the costs were higher in patients with more advanced COPD.<sup>4</sup> In a study conducted by Motegi and his colleagues that examined the inpatient hospitalization cost due to acute exacerbations of COPD in Japan, and the mean cost per hospitalization was shown to be 690,000 yen (\$8,214\*).<sup>5</sup> This amount is nearly equal to that in the UK and the Netherlands.<sup>4</sup> Based on this comparison, it is reasonable to assume that the inpatient hospitalization cost associated with COPD in Japan is fairly high. Thus, it is particularly important to obviate inpatient hospitalizations to reduce the medical expenditure associated with acute exacerbations of COPD.

As shown here, it is reasonable to assume that medical expenditure associated with COPD in Japan is considerably high. It is therefore impor-

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This article is a revised English version of a paper originally published in the Journal of the Japan Medical Association (Vol.138, No.12, 2010, pages 2467).

tant to obviate acute exacerbations to reduce the medical expenditure associated with COPD. There are many cases of undiagnosed and untreated COPD, which are extremely likely to become severe and result in acute exacerbation. Proper interventions such as early diagnosis, smoking cessation, pharmacotherapy, and patient

education are essential to prevent the development of acute exacerbations and reduce the medical expenditure. It is also of great importance that medical and healthcare professionals treat COPD patients with the recognition that COPD is a disease with high societal loss including the medical economic burden.

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\* Currency rate used: \$1 USD = 84 yen.

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