睡眠呼吸中止症成本推估

Estimate the Cost of Obstructive Sleep Apnea

中文摘要

根據統計，睡眠呼吸中止症在 30 至 60 歲的中年人中，男性的發生率約 4% ，而女性的發生率約 2% 。研究顯示睡眠呼吸中止症和高血壓、糖尿病、代謝症候群，甚至心血管疾病都有密切的關係。如果睡眠呼吸中止症患者沒接受治療，可能會有嚴重併發症和可能消耗大量的醫療資源以及巨大的經濟損失。因此本研究旨在估計睡眠呼吸中止症在臺灣的疾病成本。

本研究利用疾病盛行情形和人力資本法爲基礎計算疾病成本，其中包含醫療成本(睡眠呼吸中止症及其併發症)和非醫療成本(生產力損失和交通費用)，但排除死亡成本和無形成本。醫療成本包括全民健康保險醫療給付及病人自行負擔的費用。全民健保醫療給付之資料來源是 2005 年的健保門診申報資料，病人自行負擔成本資料則以電話訪問收集。全民健保給付睡眠呼吸中止症醫療成本之計算方面，本研究以主診斷爲國際疾病分類代碼 780.51 和 780.53 或 780.56 者進行資料擷取，總共有 2,084 名患者。治療睡眠呼吸中止症併發症的醫療成本(高血壓、糖尿病、憂鬱症和缺血性心臟病)則以這些疾病之健保門診費用與文獻中這些疾病之可歸因於睡眠呼吸中止症之比率來計算。失眠歸因於睡眠呼吸中止症成本則利用健保資料中失眠相關門診費用與文獻記載罹患失眠且呼吸中止症病人醫療費用佔失眠總費用之百分比來計算。非醫療成本利用電話訪問的問卷進行收集，內容包含部份負擔的醫療費用、交通費用、前一年因爲就診之生產力損失，與未就醫前之生產力損失。問卷回收包含 60 名臺灣睡眠障礙協會的會員及 47 名曾向某醫療儀器公司購買連續正壓呼吸器的病人。

本研究結果顯示 2005 年睡眠呼吸中止症的疾病總成本約爲 37 億元，其中包括直接成本(醫療成本和交通費用)約 12 億元(32.31 %)和間接成本的生產力損失約爲 25 億元(67.69%)。併發症的醫療費用約爲 12 億元占直接成本 97.22% 。未就醫之患者工作量損失所造成之生產力損失約爲 25 億元。敏感度分析顯示成本估計隨著併發症歸因比率不同參數的假設而有所不同，其中以併發症參數對疾病成本之影響最大。

既然併發症成本與間接成本佔總成本之大宗，而且本研究之問卷資料顯示睡眠呼吸中止症患者接受治療後其生活品質大爲提升，這意味著如果有更多病人接受治療，睡眠呼吸中止症總疾病成本將可以有效降低。若是如此，相關單位如何提升醫師與病患對此疾病之認識，促使潛在病患接受治療是一個重要的議題。最後，讀者需注意本研究之成本推估有不少侷限，有關睡眠呼吸中止症治療之成本與效益需要未來更多研究加以分析探討。

英文摘要

According to the statistics, the incidence of obstructive sleep apnea (OSA) is 4% for the middle-aged male and 2% for female. Literature demonstrated OSA is closely related to many diseases such as hypertension, diabetes, metabolism syndrome and cardiovascular diseases. If patients with OSA are not well treated, they are likely to have serious complications and potentially consume a lot of health care

resources as well as bear huge economic loss. The objective of this study is to estimate the cost of illness on OSA in Taiwan.
Applying the prevalence-based approach and the human capital approach, this study estimated medical costs (the treatment of OSA and its complications) and non-medical costs (productivity loss and travel expenditure), but excluded mortality and intangible costs. The medical costs included outpatient costs covered by National Health Insurance (NHI) and out-of-pocket medical care spending. The study used NHI outpatient claim data in 2005 to estimate the former, and conducted a telephone survey to collect the latter. The NHI medical costs for the treatment of OSA were based on the health care utilization of patients whose main diagnosis codes were ICD9 780.51, 780.53 and 780.56, and 2,084 patients were identified. In addition, the NHI medical costs for treating the complications of OSA (hypertension, diabetes, depression, and ischemic heart diseases) were estimated to be equal to the NHI outpatient expenditures of these diseases time the estimated attributable rates from the literature. The costs of insomnia attributable to OSA were estimated also with the NHI data and the attributable percentage based on the literature. The sample of the telephone survey data included 60 patients who were the members of Taiwan Sleep Disorders Association and 47 patients who had purchased nasal continuous positive airway pressure ventilators from a medical equipment company. The self-pay costs included the total medical costs, travel expenditure, and productivity loss in the previous year as well as annual productivity loss before they seek treatment.
Results showed that the total cost of illness on OSA in 2005 is around NT$3.80 billions, including direct costs (medical costs and travel expenditure) for NT$1.27 billions (32.31%), and indirect productivity loss for NT$2.53 billions (67.69%). The medical costs of OSA complications were approximately NT$1.24 billions representing 97.22% of the total direct costs. Almost all of the indirect productivity loss (NT$2.52 billions) was incurred by those who did not seek OSA treatments. Sensitivity analysis showed that the costs estimates vary with different parameters assumptions. In particular, different attributable rates have great impacts on the costs estimates.

In conclusion, since most of the total costs of illness on OSA are contributed by the costs of complications and indirect costs and the survey showed that patients' quality of life had improved, it implies that the total costs can be effectively reduced if more people with OSA get proper treatments. Therefore, it is important for both physicians and patients to be more aware of this disease so that more patients are well treated. Finally, it is important to note that the cost estimates are subject to various limitations of this study. More research is needed to understand the costs and benefits of OSA treatments