中文題目：Metformin 降低糖尿病人肺癌發生率之劑量相關效應

英文題目：Metformin Decreased Lung Cancer Incidence in Diabetic Patients in a Dose-Dependent Pattern

作　　者：蔡明儒[1] 龔雅婷[2] 張碧玉[2] 楊志仁[1,3] 許超群[1,3] 邱亨嘉[4] 黃明賢[1,3]

服務單位：高雄醫學大學附設中和紀念醫院 [1]內科部胸腔內科 [2]行政管理中心
高雄醫學大學 [3]醫學院醫學系 [4]健康科學院醫務管理及醫療資訊學系

**Objective:**

Higher risk of lung cancer has been noted in patients with type 2 diabetes mellitus (DM). Some observational studies have shown a reduced risk of lung cancer in DM patients taking metformin, but a dose-response relationship has never been reported. Furthermore, few studies, especially that using UK General Practice Research Database (UK-GPRD), showed no significant difference in risk of lung cancer between metformin users and non-users. We therefore conducted a nationwide population-based study using Taiwan National Health Insurance (NHI) database with a novel study design.

**Methods:**

The dataset used for this study is a cohort of 1 million subjects randomly sampled from individuals enrolled in the NHI system. We enrolled all patients with a diagnosis of type 2 DM between 1997 and 2007. Patients with a diagnosis of type 2 DM before 1997, those with a diagnosis of malignancy or pre-cancer lesion, those using metformin before DM diagnosis, those with polycystic ovary syndrome, and those with a DM diagnosis before their 15 years of age were excluded. The demographic data and duration and dose of metformin usage were compared between patients developing lung cancer and those without lung cancer.

**Results:**

From the cohort, a total of 47356 subjects were identified by the algorithm, and 673 patients developed lung cancer during the follow-up period. The group of patients developing lung cancer was elder in age and male predominant; less patients in this group had ever used metformin. After adjusting for age, gender, and Charlson Comorbidity Index, multivariable analysis revealed the use of metformin was an independent protection factor, and the risk of developing lung cancer decreased progressively with the higher cumulative dose of metformin and the higher daily dose of metformin.

**Conclusions:**

Our study revealed that use of metformin significantly decreased the risk of lung cancer in patients with type 2 DM in a dose-dependent manner. We are the first to report a dose-response relationship between the use of metformin and reduced risk of lung cancer. The different outcomes between these studies may be related to the differences in ethnic groups, doses of metformin, or the study design. Further study may be needed to provide more solid evidence about the cancer-preventing effect of metformin and to determine the origin of the differences between the studies.