

中文題目：運用健保資料庫分析台灣癌症伴有糖尿病病患使用 Metformin 有較低的骨質疏鬆症

英文題目：Metformin attenuates rate of osteoporosis in patients with cancer and diabetes in Taiwan

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Background: Patients with diabetes are at increased risk of cancer development and associated with an increased risk of fragility fractures compared to the general population. Metformin is an effective agent for the management of type 2 diabetes mellitus. Epidemiological studies have identified an association between metformin use and a beneficial effect on cancer prevention and treatment. Diabetes affects bone metabolism and leads to osteoporosis; however, its pathogenetic mechanisms remain unknown. This article outlines the potential for metformin attenuates rate of osteoporosis in patients with cancer and diabetes in Taiwan.

Methods: In total, 7827 subjects with cancer and diabetes under metformin therapy were selected from the National Health Insurance Research Database of Taiwan, along with 23481 patients as 1:3 sex-, age-, and index year-matched controls without metformin therapy. Cox proportional hazard analysis was used to compare the rate of osteoporosis during the 15 years of follow-up.

Results: At the end of the follow-up, 801 enrolled subjects (2.56%) had osteoporosis, including 168 from the metformin group (2.15%) and 633 from the without metformin group (2.70%). The metformin group was associated with a lower rate of osteoporosis at the end of follow-up ($P=0.009$). Cox proportional hazard regression analysis revealed the lower rate of osteoporosis for subjects under metformin therapy (adjusted hazard ratio of 0.820; 95% confidence interval = 0.691-0.972, $P=0.022$).

Conclusions: Patients with cancer and diabetes under metformin therapy were associated with lower osteoporosis rate than those without metformin therapy, and this effect may be attributed to the decrease in the levels of pro-inflammatory factors and the potential for metformin to modulate molecular pathways involved in cancer cell signaling and metabolism.