

中文題目：白三烯素受體拮抗劑可顯著降低台灣氣喘病人的罹癌風險

英文題目：Leukotriene receptor antagonists decrease cancer risks in asthma patients in Taiwan

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Introduction : Cysteinyl leukotriene receptor antagonists (LTRAs), such as montelukast and zafirlukast, are widely used drugs for treating allergic asthma. Previous *in vitro* and *in vivo* studies have demonstrated the potential of using LTRAs for chemoprevention, but this has not been investigated in any clinical setting. We therefore investigated the chemo-preventive effect of LTRAs in a nationwide population-based study.

Methods : From the Taiwan National Health Insurance Research Database, we enrolled adults with newly-diagnosed asthma between 2001 and 2011. The subjects who had ever used any LTRA after their asthma diagnoses were identified. After excluding those with cancer diagnosis before the end of the first year of LTRA use and those with the interval between first LTRA prescription and end of follow-up ≤ 1 year, subjects using LTRA for ≥ 30 days before the end of follow-up were identified as “LTRA users.” The subjects who had never used LTRA were identified as candidates for “LTRA non-users.” Each LTRA user was matched with five randomly-selected LTRA non-users by sex, age, asthma diagnostic year and modified Charlson Comorbidity Index score. We considered the development of cancer as the outcome. To minimize immortal time bias, the follow-up period was calculated from a year after the index date. The subjects were followed from a year after the index date to either development of cancer, death or the end of 2011, whichever came first.

Results : Totally, 4185 LTRA users and 20925 LTRA non-users were identified. LTRA users had a significantly lower cancer incidence rate than LTRA non-users did (5.8 vs. 13.1 per 1000 patient-years; aIRR = 0.41 [95% CI: 0.36-0.47], $p < 0.0001$). On stratified analyses, LTRA use was associated with a significantly lower cancer risk in male, female, younger, and elder patients. Multivariable Cox regression analyses adjusting for baseline characteristics and comorbidities showed LTRA use was an independent protecting factor (hazard ratio = 0.31 [95% CI: 0.24-0.39]), and cancer risk decreased progressively with higher cumulative dose of LTRAs. The significant effect of LTRA on cancer risk reduction was observed mainly in lung, colorectal, liver and breast cancer.

Conclusion : Our study revealed that the use of LTRAs in asthma patients decreased cancer risk in a dose-dependent manner. The chemo-preventive effect of LTRAs deserves further study in depth.