Role of Metformin, Aspirin and Statin in Cancer Prevention: A Population-Based Study


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**Background:** Previous studies indicated that ASA (Aspirin), metformin or statin associated with the risk of cancer but there was the conflict of the results. This is a population-based study in Thai population which aims to investigate the association between ASA, metformin, statin, and the risk of cancer.

**Method:** A population-based retrospective study was carried out in Electricity Generating Authority of Thailand (EGAT) 1 and 2 database which have been contained the 27-year and 15-year follow-up time, respectively. This database composed of the clinical characteristics, onset of cancer, and history of medications (ASA, metformin, and statin) from the questionnaire, together with the laboratory result, and the registry database from January 2002 to December 2015. Telephone follow-up was also performed in every cancer patients. We adjusted our final analyses for age, BMI, smoking and alcohol consumption. The incidence rate ratio (IRR) and 95% confidence interval (CI) were estimated for the risk of cancer and interested medications use.

**Results:** The incidence of new cancer was 209 cases (8.3%) in EGAT1 and 96 cases (3.5%) in EGAT2. The significant associations between ASA, metformin, statin use and risk of overall cancer have not been found in our study with the IRR of 1.15 (95% CI 0.77-1.73 , p = 0.50) for Aspirin, IRR of 1.01 (95% CI 0.57-1.77, p = 0.98) for metformin, and IRR of 1.05 (95% CI 0.70-1.58 , p = 0.82) for statin use. However, there were the trends of decreasing risk of thoracic cancer (43%), gastrointestinal cancer (23%), and hepatobiliary-pancreatic cancer (32%) in metformin, ASA, and statin users, respectively as shown in the table.

**Conclusions:** Role of ASA, metformin or statin in cancer prevention is still needed to be explored, but the study should be specified the type of tumor with the specific drug as the signals we found in our study. This information will be very useful for cancer metabolomics study, cancer prevention and cancer drug development in the future.