

Impact of Hyperuricemia on Development of New-onset Diabetes Mellitus in Asian Population: Five-year Clinical Outcomes

**Background:** Hyperuricemia is a well-known risk factor for diabetes mellitus (DM) and other cardiovascular diseases, but the relationship between hyperuricemia and the development of new-onset DM is not clear. We evaluated the impact of hyperuricemia on the development of new-onset DM based on 5-year cumulative clinical outcomes in Asian patients. **Methods:** A total of 3,274 patients who did not have DM were enrolled. New-onset DM was defined as having a fasting blood glucose  $>126$ mg/dL or HbA1c  $>6.5\%$ . Hyperuricemia was defined as uric acid  $>7.0$  mg/dL. Baseline characteristics between the hyperuricemia and control groups were matched with propensity score matching (PSM, C-statistics=0.731). 5-year cumulative incidence of new-onset DM was compared between the two groups. **Results:** At baseline, patients in the hyperuricemia group showed a higher prevalence of male gender, hypertension and dyslipidemia. The hyperuricemia group had higher levels of basal insulin, HOMA-IR, triglyceride and lower levels of HDL-C. Development of new-onset DM was higher in the hyperuricemia group (13.5% vs. 7.9%,  $p<0.001$ ). After PSM, baseline characteristics were well balanced (C-statistics=0.731). After adjustment with cox-regression analysis, hyperuricemia remained to be an independent predictor of new-onset DM (OR 1.72, 95% CI 1.01 – 2.94,  $p=0.045$ , figure). **Conclusions:** Hyperuricemia was shown to be an independent predictor of new-onset DM. Therefore it may be suggested that uric acid levels should be included in the prediction of DM and patients with hyperuricemia may benefit from measures to reduce the uric acid.