

中文題目：在一項大型台灣族群追蹤研究探討貧血和高尿酸血症對於新發生慢性腎臟病的加乘作用

英文題目：Synergetic association between anemia and hyperuricemia on new-onset chronic kidney disease in a large Taiwanese population follow-up study

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**Background:** Chronic kidney disease (CKD) is a global issue in recent decades.

Anemia and hyperuricemia are common in the patients with CKD. However, whether it only reflects the combined effect of renal damage with comorbidities or whether it is a causative factor is also controversial. We designed a cohort study of around 27,000 Taiwanese participants in the Taiwan Biobank (TWB) to find out the correlation between anemia, hyperuricemia and new-onset CKD.

**Methods:** In this study, 26,928 patients completed a median 4 years follow-up were included, while 297 participants were excluded due to baseline estimated glomerular filtration rate (eGFR) < 60 ml/min/1.73m<sup>2</sup>. Participants developed CKD (eGFR < 60 ml/min 1.73m<sup>2</sup>) during the follow-up period was defined as new-onset CKD. Anemia was defined as hemoglobin < 13 mg/dL in male and < 12 mg/dL in female. Hyperuricemia was defined as serum uric acid (UA) > 7 mg/dL in male and > 6 mg/dL in female. We classified the patients into 4 groups according to the existence of anemia and hyperuricemia or not.

**Results:** After multivariable analysis, low hemoglobin (per 1 g/dL; odds ratio [OR]: 0.760;  $p < 0.001$ ), high serum UA (per 1 mg/dL; OR: 1.444;  $p < 0.001$ ) (Model 1), anemia (OR: 2.367;  $p < 0.001$ ), hyperuricemia (OR: 2.516;  $p < 0.001$ ) (model 2), and study group with anemia, without hyperuricemia (OR: 2.502;  $p < 0.001$ ), study group without anemia, with hyperuricemia (OR: 2.559;  $p < 0.001$ ), study group with anemia and hyperuricemia (OR: 5.505;  $p < 0.001$ ) (vs. without anemia and hyperuricemia) were significantly associated with new-onset CKD. There was significant interaction between hemoglobin and serum UA on new-onset CKD ( $p < 0.001$ ).

**Conclusions:** In conclusion, anemia and hyperuricemia were significantly associated with the new-onset CKD, and the synergetic effect of anemia and hyperuricemia on the new-onset CKD was noted.