AC097

Adult Cardiology & Clinical Cardiovascular Medicine • Poster Presentation

SEX-SPECIFIC AND JOINT ASSOCIATIONS OF THE TRIGLYCERIDE–GLUCOSE INDEX AND HYPERURICAEMIA WITH REDUCED KIDNEY FUNCTION IN NIGERIAN ADULTS WITH HYPERTENSION

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Background: Insulin resistance and hyperuricaemia frequently coexist in hypertension and may jointly worsen renal outcomes, but their combined and sex-specific associations with kidney function remain poorly characterised in African populations.

Methods: In this retrospective cross-sectional study of 1,470 hypertensive Nigerian adults (mean age 55.8±13.9 years; 52.7% men), participants were classified by triglyceride–glucose (TyG) index and hyperuricaemia status into four joint phenotypes. Multivariable logistic regression assessed associations with reduced renal function (eGFR<60 mL/min/1.73m²), with formal multiplicative and additive interaction testing and sex-stratified analyses.

Results: Reduced renal function was present in 540 (36.7%) participants. After full adjustment, isolated high TyG (aOR 2.41), isolated hyperuricaemia (aOR 2.54), and their combination (aOR 3.73) were each associated with higher odds of reduced renal function (all p<0.001). No significant multiplicative or additive interaction was found, indicating additive rather than synergistic risk. TyG was independently associated with reduced renal function in both sexes, though substantially more strongly in women (aOR 1.97–2.04 per SD) than men (aOR 1.22–1.27 per SD; interaction p<0.001), a finding stable regardless of how uric acid was modelled. A combined model incorporating TyG and uric acid improved discrimination beyond conventional risk factors (AUC 0.715 to 0.763, p<0.001), with good calibration on cross-validation.

Conclusion: Elevated TyG and hyperuricaemia are independently and additively associated with reduced renal function in hypertensive Nigerian adults, identifying a high-risk metabolic phenotype. The TyG–renal association is markedly stronger in women, underscoring the need for sex-specific risk assessment in cardiovascular–kidney–metabolic care.

Key words: Triglyceride–glucose index; hyperuricaemia; hypertension; chronic kidney disease; sex differences; cardiovascular–kidney–metabolic syndrome; Nigeria.