

Triple whammy phenomenon among type 2 diabetes patients: A cross-sectional study in Malaysian primary care setting

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ABSTRACT

Introduction: Type 2 diabetes (T2D) patients have a higher risk of developing kidney disease. The triple whammy phenomenon refers to the concurrent use of angiotensin-converting enzyme inhibitors (ACE-I) /angiotensin receptor blockers (ARB), diuretics, and nonsteroidal anti-inflammatory drugs (NSAID) that could potentially lead to acute kidney injury. In this study, we investigated the prevalence of this phenomenon among T2D patients in Malaysia. **Methods:** A cross-sectional study using electronic medical records from two public primary care clinics in Klang Valley was conducted. Adult T2D patients with a prescription from 2017 to 2022 and at least one follow-up visit were included. The occurrence of the triple whammy phenomenon was descriptively presented, and its potential association with age was investigated using the ANOVA test with a significance level set at $p < 0.05$. **Results:** A total of 45,260 prescriptions from 4,864 T2D patients were analysed. Prescriptions with dual combinations were mainly of ACE-I/ARB plus diuretics (15.9%), followed by ACE-I/ARB plus NSAID (1.4%) and diuretics plus NSAID (0.3%). Only a small proportion of the prescriptions (0.3%) had the triple whammy combination. Mean age was not significantly different among those with and without the triple whammy combination. Notably, there was no triple whammy combination prescribed to T2D patients with existing chronic kidney disease. **Conclusion:** The prevalence of the triple whammy phenomenon is low from our study findings. However, we could not capture if NSAIDs were purchased over-the-counter by the patients. It is thus important to increase awareness about this phenomenon among prescribers and patients.