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Prevalence and disease burden of chronic kidney disease and hepatitis B, C co-infection among HIV infected population: A meta-analytic synthesis

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Objectives: Chronic kidney disease (CKD) is a major health concern for HIV-infected population, has become an important cause of morbidity and mortality. We aimed to conduct a meta-analysis to estimate the prevalence of CKD and hepatitis B, C co-infection among HIV infected population in the Asian countries.

Methods: A systematic search was performed in PubMed, and Embase to identify articles from inception to January, 2020. The eligible studies determine the prevalence of CKD among HIV positive population in the Asian continent. The random effects model was used to calculate the pooled estimate using "meta" package through R 3.5.0. Software.

Results: A total of 11 studies with 53656 participants were included. The mean age of participants was 41.28 years. CKD was defined as estimated glomerular filtration rate (eGFR) <60mL/min/1.73m2 by using the equation Modification of Diet in Renal Disease (MDRD) in 7 studies, Chronic Kidney Disease Epidemiology (CKD-EPI) in 3 studies and Cockcroft-Gault (CG) in one study. The prevalence of hepatitis B and C co-infection ranges from 1.6% to 16% and from 3.3% to 33.4% respectively. The overall prevalence of CKD was 9.5% (95%CI: 6.2-14.3%), (I^2= 99%, p< 0.01) with high degree of heterogeneity. Subgroup analysis was reported the highest prevalence in japan, 13.65% (95%CI: 17.4- 25.4%), followed to china 11.76% (95%CI: 15.3-24.7%), Taiwan, Australia, and Vietnam. The CKD prevalence was observed 9.6% (95%CI: 7.6-11.8%) with MDRD, 6.2% (95%CI: CI 2.5-6.8.1%) with CKD-EPI and 10.7% (95%CI: 9.4- 11.7%) with CG. There was no significant publication bias was observed (p = 0.97).

Conclusions: The current finding suggests that people with HIV infection have a high burden of CKD, especially in Japan. Moreover, HIV treatment programs should consider early screening for CKD and hepatitis B, C co-infection among HIV infected populations to prevent and delay the progression of comorbidity.