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Corrigendum to "Comparison of cardiovascular outcomes and all-cause mortality in patients with chronic hepatitis B and C: A 13-year nationwide population-based study in Asia" [Atherosclerosis 269 (2018) 178–184]

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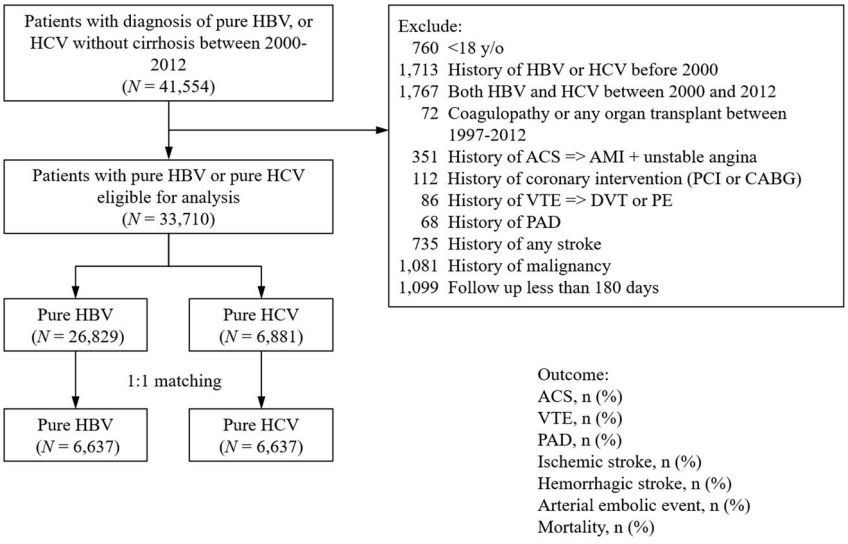
Fig. 1 in the published version of the above paper was incorrect. Please find the correct figure below.



There were also some errors in the text. The correct text has therefore been published below.

Abstract

Background: Viral hepatitis infection has been linked to increased atherosclerosis. We therefore investigated cardiovascular outcomes in patients with hepatitis B virus (HBV) and hepatitis C virus (HCV) infection.

Methods: Electronic medical records during 2000–2012 were

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retrieved from the Taiwan National Health Insurance Research Database. Exclusion criteria were age < 18, history of coexisting HBV and HCV infection, acute coronary syndrome, coronary intervention, venous thromboembolism, peripheral artery disease, stroke, major or gastrointestinal bleeding, malignancy, and a follow-up period < 180 days. Patients with HBV and HCV infection were propensity-matched then compared for outcomes. Primary outcomes were cardiovascular events at the 1-year follow-up, 3-year follow-up, 5-year follow-up, and at the end of follow-up.

Results: 41,554 patients with diagnosis of HBV or HCV were retrieved from 2000–2012. After exclusion criteria, 33,710 patients were eligible for analysis and propensity score matched. The study population consisted of 6,637 patients with HBV infection and 6,637 patients with HCV infection. Risk of composite arterial events (acute coronary syndrome, peripheral artery disease, and acute ischemic stroke) was significantly higher in patients with HCV infection compared with patients with HBV infection ($p = 0.012$ at 5-year follow-up and $p = 0.003$ at the end of follow-up). All-cause mortality was significantly higher in patients with HCV infection compared with patients with HBV infection ($p < 0.001$ at 3-year follow-up, 5-year follow-up, and at the end of follow-up).

Conclusions: In patients with chronic viral hepatitis, subjects with HCV infection had a significantly higher risk of composite arterial events and all-cause mortality compared with those with HBV infection.

3.1 Study Population

Overall, 41,554 patients in the LHID 2000 had received a diagnosis of HBV or HCV infection (without cirrhosis) between 2000 and 2012. A total of 33,710 patients were selected for the study after applying the aforementioned exclusion criteria. The cohort comprised 26,829 (79.6%) patients with only HBV infection and 6,881 (20.4%) patients with only HCV infection. After propensity score matching, 6,637 patients with HBV infection and 6,637 patients with HCV infection were included in the study (Figure 1). Comparing the two groups before matching, the HCV group contained a larger proportion of female patients, older patients on average, a higher prevalence of all comorbidities, and patients with a higher likelihood of being prescribed a medication. The distributions of baseline characteristics, medical histories, medications, and index dates were well balanced between the groups after the propensity score matching (right panel in Table 1).

4.2 Current Study

From 2000 to 2012, 41,554 patients were diagnosed as having HBV and HCV infection. After applying the exclusion criteria, 33,710 patients were separated into an HBV group (26,829 patients) and HCV group (6,881 patients). The study population comprised 6,637 patients with HBV and 6,637 patients with HCV after propensity score matching for gender, age, comorbidities, and medications. We retrospectively followed this chronic HBV and HCV population, who had a relatively small percentage of traditional risk factors such as diabetes mellitus (14.3% and 13.8%, respectively), hypertension (25.5% and 24.7%), hyperlipidemia (11.5% and 10.7%), and CAD (6.6% and 6.6%). Small percentages of the study population used beta-blockers (14.1% and 13.3%), calcium channel blockers (15.9% and 15.5%), and statins (5.4% and 5.0%). Because of the exclusion criteria, the study patients were naïve to atherosclerotic events such as myocardial infarction and ischemic stroke. There were no significant differences in vascular events at the 1-year follow-up; however, arterial atherosclerosis, stenosis, and occlusion leading to ACS or AIS were significantly higher in patients with HCV than in patients with HBV at the 3-year follow-up, 5-year follow-up, and at the end of follow-up. In addition, a subgroup analysis showed that the risk of composite arterial events was significantly higher in patients with HCV infection than in patients with HBV infection, irrespective of gender, age, comorbidities, and medication use. A cumulative incidence graph also confirmed that patients with HCV infection had a higher risk of composite arterial events throughout the follow-up period, which suggests that HBV and HCV have inherently different atherogenic potential. Thus, this study offers a definitive explanation for the clinically observable higher cardiovascular disease burden among patients with chronic HCV infection.