The Influence of Portal Pressure on the Discordance Between Absolute CD4+ Cell Count and CD4+ Cell Percentage in HIV/Hepatitis C Virus–Coinfected Patients

TO THE EDITOR—We read the articles by Hull et al [1] and Claassen et al [2] with interest. The authors have demonstrated that a discordance between absolute CD4+ cell count and CD4+ cell percentage is common in both human immunodeficiency virus (HIV)/hepatitis C virus (HCV)–coinfected and HIV-infected patients and that it is associated with end-stage liver disease and surrogate markers of liver fibrosis, such as aspartate aminotransferase to platelet ratio index and liver stiffness measured by transient elastography. On the basis of the association of CD4+ cell discordance with thrombocytopenia, leukopenia, and splenomegaly in HIV-uninfected patients [3], Hull et al speculated that CD4+ cell discordance might be attributed to portal hypertension–induced splenic sequestration of lymphocytes. We would like to report our own complementary data on the relationship between portal pressure and CD4+ cell discordance in HIV/HCV-coinfected patients screened for inclusion in a prospective trial [4]. Portal pressure was assessed through measurement of the hepatic venous pressure gradient (HVPG) in 97 HIV/HCV-coinfected patients with compensated liver disease. In accordance with the definitions used by Hull et al, CD4+ cell counts were considered concordant when the absolute CD4+ cell count matched the corresponding CD4+ cell percentage determined in HIV-infected individuals (<100 cells/μL, <7%; 100–199 cells/μL, 7%–13%; 200–299 cells/μL, 14%–20%; 300–399 cells/μL, 21%–27%; 400–499 cells/μL, 28%–34%; >500 cells/μL, >35%). Higher CD4+ cell percentages than expected from the absolute CD4+ cell counts were referred to as high discordance, while lower CD4+ cell percentages than expected from the absolute CD4+ cell counts were referred to as low discordance. Patient characteristics were as follows: 76% were male, mean age was 37.3 ± 9.7 years, 72% were on combined antiretroviral therapy, mean absolute CD4+ cell count was 519 ± 261 cells/μL, mean CD4+ cell percentage was 28.6 ± 10.4%, mean HVPG was 4.8 ± 3.8 mm Hg, and 19% had cirrhosis. High and low CD4+ cell discordance was observed in 18% and 38% of patients, respectively, whereas 44% of patients had concordant CD4+ cell counts. There was a tendency toward a higher prevalence of high CD4+ cell discordance in patients with high portal pressure (≤5 mm Hg, 15% vs 6–10 mm Hg, 22% vs ≥11 mm Hg, 29%; P = .651). In contrast, low CD4+ cell discordance was observed more frequently in patients with low portal pressure.

Figure 1. A, Prevalence of high and low CD4+ cell discordance in different portal pressure groups. Portal pressure was assessed through measurement of the hepatic venous pressure gradient (HVPG). B, Relationship between HVPG and absolute CD4+ cell count/CD4+ cell percentage ratio. Abbreviation: HVPG, hepatic venous pressure gradient.
pressure (≤5 mm Hg, 42% vs 6–10 mm Hg, 39% vs ≥11 mm Hg, 0%; \(P = .109\); Figure 1A). Portal pressure was significantly correlated with the absolute CD4+ cell count/CD4+ cell percentage ratio (\(r = -0.201, P = .049\); Figure 1B). The observed trends did not attain statistical significance, which might be attributed to the low number of cirrhotic patients who all had compensated liver disease. To the best of our knowledge, these are the first data to demonstrate that portal pressure influences the relationship between absolute CD4+ cell count and CD4+ cell percentage. The results of our study support the hypothesis proposed by Hull et al with hemodynamic data and provide a valuable insight into the underlying pathophysiology of CD4+ cell discordance in HIV/HCV-coinfected patients. In conclusion, clinicians should consider portal hypertension as a potential confounder when interpreting results on CD4+ cell counts.

Notes

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