Poster: 27

Interaction between hepatitis B and C in HIV-infected patients; risk of dying among patients with a triple infection

Colette Smit1, Joop E. Arends2, Frank de Wolf1,3, Andy I.M. Hoepelman

1 HIV Monitoring Foundation, Amsterdam, The Netherlands, 2 Department of Internal Medicine and Infectious diseases, UMCU Utrecht, The Netherlands

3 Department of Infectious Diseases Epidemiology, Imperial College School of Medicine, London, United Kingdom

HIV Monitoring Foundation
Meibergdreef 9
1105 AZ Amsterdam, The Netherlands
Phone/Fax: 31-20-5664172/566 91 89
Email: colette.smit@amc.uva.nl

1. Background

The natural history for hepatitis B (HBV) or hepatitis C (HCV) individually in HIV-infected patients is extensively studied.
For the combination of HBV and HCV in HIV-infected patients (triple infection) data are scares.

Objective

To study differences in the progression to death between HIV-mono-infected, HBV/HIV, HCV/HIV and triple-infected patients.

2. Methods

Study population:

HIV-infected patients participating in the ATHENA national observational cohort, tested for both HBV and HCV, using cART and at least 18 years old at time of HIV diagnosis

Patient were categorized as:

1) HIV
2) HBV/HIV
3) HCV/HIV
4) HBV/HCV/HIV

HBV-co-infection: defined by a positive HBs-Ag test

HCV-co-infection: defined by a positive HCV-antibody test, preferably confirmed with a positive HCV RNA test.

Statistical analysis

Kaplan-Meier estimates of the probability of death were plotted for the time from cART initiation until death, stratified by co-infection.

Risk of dying was estimated using a Cox proportional hazards model

Follow up time from cART initiation to date of last contact, death or January 2008.

3. Results

11,181 patients were included

10163(86%)	had an HIV infection only
682(6%)	were HBV/HIV co-infected
769 (7%)	were HCV/HIV co-infected
112 (1%)	were triple infected

Table 1: Hazard ratios (HR) of time to death

Co-infection	Mortality Adjusted HR (95% CI)
HIV	1
HBV/HIV	1.19 (0.85-1.67)
HCV/HIV	1.50 (1.11-2.04)
Triple-infection	1.86 (1.08-3.21)

Adjusted for age at cART initiation, calendar year of cART initiation, transmission category, baseline CD4 cell counts and HIV RNA levels

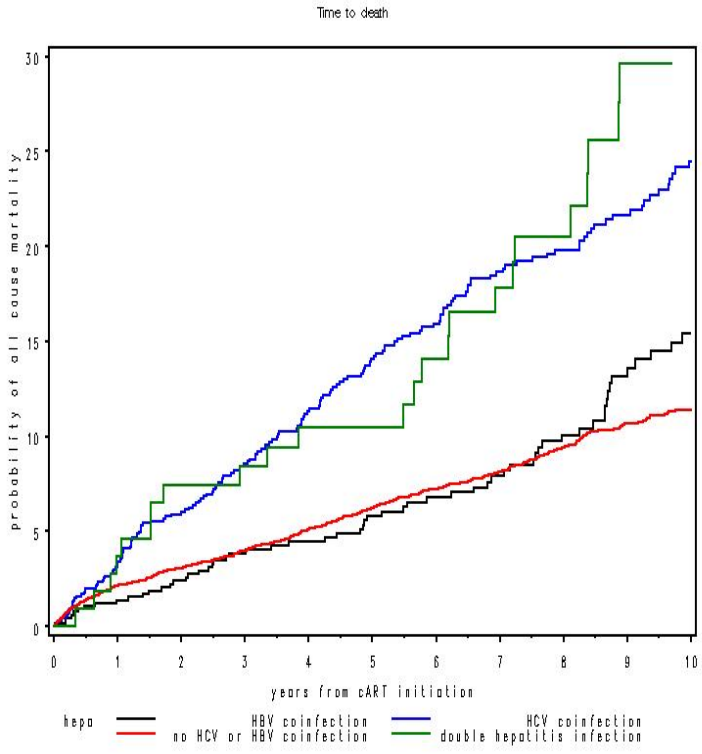

Figure 1: Cumulative incidence of all-cause mortality among HIV infected patients, hepatitis B co-infected patients, hepatitis C co-infected patients and amongst patients with a triple infection of HIV, HBV and HCV.

3. Results *continued*

Median follow-up time: 5.8 years (interquartile range: 3-9)

In total, 818 of the patients died during follow-up

All-cause mortality 10 years after cART initiation:

- 33% of the triple infected patient had died (95% confidence interval (CI): 24-66)
- 25% of HCV/HIV infected patients (CI:21-28)
- 16% of HBV/HIV infected patients (CI:12-20)
- 13% of the HIV infected patients (CI:11-14)

Triple infected patients died significantly faster compared to HIV-infected patients, p- value log rank test <0.001 (figure 1)

Compared to HIV-infected patients, the adjusted risk of dying was significantly higher in triple infected patients, hazard ratio: 1.86 (CI:1.08-3.21) (table 1)

4. Conclusions

Although cART increased the life expectancy in HIV infected patients, those with a chronic triple infection of hepatitis B, C and HIV as well as Hepatitis C-co-infected HIV patients still have an increased risk of dying.

Therefore, hepatitis C treatment should receive priority in the treatment of HCV/HIV-infected patients.