Faster decrease in CD4 cell counts during treatment of hepatitis C among HIV/HCV-co-infected patients with high CD4 cell counts compared to those with low CD4 counts.

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Background

Hepatitis C virus (HCV) is common amongst HIV-infected individuals and HCV treatment in co-infected patients is becoming more important. In trials, decreases in CD4 counts during HCV treatment have been observed. We examined differences in CD4 count declines between patients with high and low CD4 counts at the time of HCV treatment initiation in an observational cohort.

Methods

All HIV/HCV co-infected patients receiving HCV treatment were selected from the Netherlands ATHENA observational cohort. HCV therapy was defined as using (peg)-interferon (IFN). Immunologic and virologic trajectories were compared between patients with <250 CD4 cells/µl and ≥ 250 CD4 cell/ µl at time of IFN initiation. Changes in absolute CD4 counts, CD4 percentage and HIV RNA during IFN treatment were modelled using a random effect model. Time was included in weeks before and after IFN initiation. The effect of IFN on CD4 cell counts is expected to be stronger shortly after treatment initiation; therefore slopes were allowed to change at time of treatment initiation, week 12, 24 and 48. The risks of progression to AIDS and death in the first year of IFN treatment were estimated using a Cox model. Only patients who were treated with cART before IFN initiation were included in these analyses.

Results

9% of the 10,777 patients were HCV positive. 82 out of 1013 of the HIV/HCV-co-infected patients were treated with IFN, of which 68 used cART.

The median CD4 counts at IFN initiation were 125 cells/µl (IQR:103-209) in the group with low CD4 counts (n=22) and 460 cells/µl (IQR:320-605) among the patients with high CD4 counts (n=46).

CD4 counts declined significantly during the first 12 weeks of IFN treatment among patients with high CD4 counts, and increased significantly between weeks 12 and 24. Among patients with low CD4 counts, a non-significant decline was seen in the first 12 weeks of treatment, this decline continued between week 12 and 24. After week 24, most of the patients discontinued their IFN, and a small non-significant increase in CD4 counts was found in both groups. Patients with high CD4 counts showed a significant faster CD4 count decline in the first 12 weeks compared to patients with low CD4 counts. CD4% remained stable during IFN treatment in both groups.
No significant difference in HIV RNA was observed between both groups and during IFN treatment HIV RNA levels remained stable.
Patient with low CD4 counts had a non-significantly higher risk of progression to death in the first year after treatment initiation.

Discussion

In patients treated for HCV with high CD4 counts at time of treatment initiation, a strong decrease in CD4 counts was observed in the first 12 weeks, probably as a result of IFN. The decline in CD4 counts among patients with low CD4 counts was less strong. However, both groups showed a small immune restoration, which occurred earlier in the group with high CD4 counts. Although not significant, the risk of death was higher among patients who started treatment with low CD4 counts.