Changes in biomarkers of liver disease during successful combination antiretroviral therapy in HIV-HCV-coinfected individuals

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BACKGROUND

We investigated changes in biomarkers of liver disease in HIV-HCV-coinfected individuals during successful combination antiretroviral therapy (cART) compared to changes in biomarker levels during untreated HIV infection and to HIV-monoinfected individuals.

METHODS

Non-invasive biomarkers of liver disease (hyaluronic acid [HYA], aspartate aminotransferase-to-platelet ratio index [APRI], Fibrosis-4 [FIB-4] index and cytokeratin-18 [CK-18]) were correlated with liver histology in 49 HIV-HCV-coinfected patients. Changes in biomarkers over time were then assessed longitudinally in HIV-HCV-coinfected patients during successful cART (n=58), during untreated HIV-infection (n=59), and in HIV-monoinfected individuals (n=17). The median follow-up time was 3.4 years on cART. All analyses were conducted before starting HCV treatment.

RESULTS

Non-invasive biomarkers of liver disease correlated significantly with the histological METAVIR stage (P<0.002 for all comparisons). The mean ±sd area under the receiver operating characteristic (AUROC) curve values for advanced fibrosis (≥F3 METAVIR) for HYA, APRI, FIB-4 and CK-18 were 0.86 ±0.05, 0.84 ±0.08, 0.80 ±0.09 and 0.81 ±0.07, respectively. HYA, APRI and CK-18 levels were higher in HIV-HCV-coinfected compared to HIV-monoinfected patients (P<0.01). In the first year on cART, APRI and FIB-4 scores decreased (-35% and -33%, respectively; P=0.1), mainly due to the reversion of HIV-induced thrombocytopenia, whereas HYA and CK-18 levels remained unchanged. During long-term cART, there were only small changes (<5%) in median biomarker levels. Median biomarker levels changed <3% during untreated HIV-infection. Overall, 3 patients died from end-stage liver disease, and 10 from other causes.
CONCLUSIONS
Biomarkers of liver disease highly correlated with fibrosis in HIV-HCV-coinfected individuals and did not change significantly during successful cART. These findings suggest a slower than expected liver disease progression in many HIV-HCV-coinfected individuals, at least during successful cART.