Concerns About Kidney Health Among Children on HIV Treatment

Following a group of Ethiopian children on antiretroviral therapy, researchers observed declining kidney function but improving liver enzymes.

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Ethiopian children living with HIV experienced declining kidney function but improving liver enzymes while on antiretroviral (ARV) treatment in a recent study.

Publishing their findings in HIV Medicine, researchers conducted a prospective cohort study of 705 children in southern Ethiopia enrolled in the EPHIC study between October 2015 and October 2016. Participants had their kidney function and liver enzymes tested at the outset of the study. A respective 615, 554 and 490 children also received such tests at months six, 12 and 18 of the follow-up period. A total of 450 children received all four tests.

The children's median age was 12 years old. A total of 53.3 percent were male. Thirty-six (5.1 percent) were not on ARVs when starting the study. The others had been on HIV treatment for at least three months and for a median of 3.3 years.

The children's liver fibrosis and cirrhosis statuses were assessed using the AST liver enzyme to platelet ratio index (APRI) and fibrosis score (FIB-4) methods.

Upon enrolling in the study, 177 (25.1 percent) and 83 (11.8 percent) of the children had elevated AST and ALT liver enzymes, respectively. One in ten children had an APRI score greater than 0.5, suggesting they had liver fibrosis.

Being on an ARV regimen containing Retrovir (zidovudine, or AZT) or Viramune (nevirapine) and having a viral load greater than 1,000 were each significantly associated with having elevated ALT liver enzymes. Retrovir is included in the combination tablets Trizivir (abacavir/zidovudine/lamivudine) and Combivir (zidovudine/lamivudine).

Neither Retrovir nor Viramune are commonly in use in the United States anymore.

As for indications of compromised kidney health at the beginning of follow-up, 24 (3.4 percent) and 84 (12.1 percent) of the participants had elevated creatinine and blood urea nitrogen (BUN), respectively.

For every six months of additional time spent on ARVs, the median BUN increased by 1.6 milligrams per deciliter and the glomerular filtration rate decreased by 35.6 milliliters per minute per 1.73 meters squared. Both of these results are indications of declining kidney health. On the bright side, each additional six months on ARVs decreased both AST and ALT liver enzymes by 1.4 international units per liter.

The study authors characterized the declines in kidney function tests as “worrisome” and said this subject requires further study.

To read the study abstract, click here.

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