Hep C Treatment Lowers the Risk of Diabetes

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March 13, 2019 By Benjamin Ryan

Treating hepatitis C virus (HCV) with direct-acting antivirals (DAAs) is associated with a lower risk of diabetes. Interestingly, DAAs themselves, not just the act of curing the virus, were tied to a lower diabetes risk in a recent large study.

Scientists have firmly established that HCV is associated with a higher risk of diabetes. However, whether interferon and ribavirin treatment for hep C affects diabetes risk remains controversial. Some reports have suggested that such treatments may actually prompt new cases of diabetes.

A recent study found that DAA therapy for HCV had a beneficial effect on glycemic control among those with diabetes. That said, no studies have directly compared diabetes diagnosis rates between people with HCV based on whether they were treated with interferon and ribavirin or DAAs or whether they went untreated.

Adeel A. Butt, MD, MS, of the VA Pittsburgh Healthcare System, presented findings at the 2019 Conference on Retroviruses and Opportunistic Infections in Seattle of a study in which he and his colleagues sought to conduct such a comparison between types of HCV treatment, looking at differences in the rate of new diabetes diagnoses that occurred more than 12 weeks after participants entered their cohort.

Adeel Butt of the VA Pittsburgh Healthcare System, speaking at CROI 2019Benjamin Ryan

The researchers analyzed data from the ERCHIVES national cohort of veterans with HCV as well as controls who do not have the virus. Data regarding the cohort members is drawn from the Veterans Health Administration Corporate Data Warehouse.

The study excluded those coinfected with HIV or hepatitis B virus (HBV); those already diagnosed with diabetes upon their entry into the cohort; and those previously treated with both interferon- and DAA-based treatment, except for those who had been treated with interferon and either of the first-generation DAAs, Incivek (telaprevir) or Victrelis (boceprevir), who were classified in the DAA treatment group.

The study cohort of 20,266 people with HCV included 4,764 people treated with interferon, who were matched with an identical number of untreated controls, and 21,279 people treated with DAAs, who were also matched one-to-one with untreated controls.

The demographics of the treated and untreated control groups were as follows: a median age of 61 and 58 years old; 54 percent and 54 percent were white, 28 percent and 30 percent were Black and 3 percent and 4 percent were Latino; 96 percent and 96 percent were male; the median body mass index was 28 and 27 (a BMI of 25 to 29.9 indicates overweight); 20 percent and 33 percent had mild or no fibrosis, 58 percent and 51 percent had moderate fibrosis, and 22 percent and 16 percent had severe fibrosis; the median HbA1c level was 5.7 and 5.8; 61 percent and 64 percent

had high blood pressure; the median baseline HCV viral load was 125 million and 1 million; and the median eGFR (an indication of kidney function) was 72.7 and 72.3 (over 60 is generally considered good kidney function).

A total of 78.8 percent of those treated for HCV achieved a sustained virologic response 12 weeks after completing therapy (SVR12, considered a cure).

During the study's follow-up, 1,679 members of the untreated group and 888 members of the treated group developed diabetes, for diagnosis rates per 1,000 cumulative years of follow-up of 20.6 and 15.4, respectively. Breaking down the data by HCV treatment type indicated that 633 members of the interferon group and 255 members of the DAA group developed diabetes, for diagnosis rates per 1,000 cumulative years of follow-up of 19.8 and 9.89, respectively. Among those treated, 500 of those who were cured and 388 of those who were not cured of hep C developed diabetes, for diagnosis rates per 1,000 cumulative years of follow-up of 13.3 and 19.2, respectively.

Those with more severe fibrosis were more likely to develop diabetes.

After adjusting the data to account for various differences between the cohort members, the study authors found that the following factors were statistically significantly associated with a higher risk of developing diabetes during follow-up (meaning these associations were not likely driven by chance): compared with being white, being Black (1.42-fold increased risk) and being Latino (1.29-fold increased risk); compared with being female, being male (1.83-fold increased risk); compared with having a BMI below 18.5 (indicating underweight), having a BMI between 25 and 29.9 (1.88-fold increased risk) and having a BMI over 30, which indicates obesity (3.38-fold increased risk); compared with having mild or no fibrosis, having severe fibrosis (1.29-fold increased risk); and each 10-fold relative increase in viral load (2 percent lower risk).

Compared with going untreated for HCV, receiving interferon treatment was associated with no significant difference in the risk of diabetes and receiving DAAs was associated with a 52 percent reduction in the risk of such a health outcome.

After adjusting the data to account for HCV cure status, the researchers found that DAAs themselves were independently associated with a reduced risk of diabetes.

To read the conference abstract, click here.

To view a webcast of the conference presentation, click here.
