Hepatitis C Treatment Targeting Liver MicroRNA Shows Early Success

April 1, 2013

A new avenue in hepatitis C virus (HCV) treatment that blocks the virus from binding to what is known as microRNA in the liver has shown promise in an early trial, MedPage Today reports. Publishing their findings in the New England Journal of Medicine, researchers studied the effects of miravirsen, which is an antisense oligonucleotide, in a double blind Phase IIa study of 36 treatment-naive people with genotype 1 of hep C who were randomly separated into one of four groups: One received a placebo, and the other three received either 3, 5 or 7 milligrams of miravirsen per kilogram of body weight.

MicroRNA is integral to the body's expression of various genes as well as for cellular metabolism. Within the liver, more than half of the microRNA is in the form of microRNA-122, or miR-122. HCV has evolved to hijack miR-122, which binds to two locations on the virus's genome and helps support its viability. Miravirsen works by binding to miR-122 and preventing its ability to bind to HCV.

(For a feature article on miR-122, as well as other information about how hep C attacks the liver, click here.)

The study participants received five injections of the drug during a 29-day period. The researchers then followed them for an additional 14 weeks. The resulting mean drop in hep C RNA in log10 IU per milliliter was 1.2 for those receiving 3 mg per kilogram, 2.9 for those receiving 5 mg per kilogram, 3.0 for those receiving 7 mg per kilogram and 0.4 for the control group.

During the follow-up period, the virus was undetectable at some points in four participants taking 7 mg per kilogram and in one participant in the 5 mg group. However, several of these participants experienced viral rebound.

Miravirsen proved safe and well-tolerated. Also, there were no apparent mutations in the sites on the virus to which miR-122 binds, suggesting that this therapy may not lead to viral resistance.

To read the MedPage Today story, click here.

To read the study, click here.
