Hepatitis C Drug Sovaldi Shows Promise in Preventing Zika Transmission

In early research in cell cultures and mice, scientists found Sovaldi could possibly thwart Zika's harmful effects on unborn babies.

January 29, 2018 By Benjamin Ryan

Gilead Sciences' blockbuster hepatitis C virus (HCV) treatment Sovaldi (sofosbuvir) may one day serve another vital purpose: as a weapon against Zika, The Washington Times reports. In early research conducted in cell cultures and mice, researchers found that the direct-acting antiviral medication protected and rescued neural cells infected with the Zika virus. Additionally, the hep C drug apparently blocked mother-to-child transmission of Zika in the animals.

"There has been a lot of work done in the past year or so to address the Zika health threat. Much of it has focused on developing a vaccine, with promising early results," the study's senior author, Alysson Muotri, PhD, a professor in the University of California, San Diego School of Medicine departments of pediatrics and cellular and molecular medicine, said in a press release. "But there is also a great need to develop clinical strategies to treat Zika-infected individuals, including pregnant women for whom prevention of infection is no longer an option. They represent the greatest health crisis because a Zika infection during the first trimester confers the greatest risk of congenital microcephaly."

Congenital microcephaly leads to the undersized head that is a hallmark of exposure to Zika during gestation among children born to mothers infected with that virus.

Publishing their findings in Scientific Reports, Muotri and her team studied Sovaldi's effects on what are known as human neural progenitor cells (NPCs). These self-renewing cells give rise to neurons and other types of brain cells. The researchers also injected Sovaldi into mice engineered to have an immunodeficiency as well as Zika infection.

Sovaldi works by blocking the replication of hep C, which belongs to the same family of viruses as Zika. What's more, the two viruses share strong structural similarities.

Previous research had indicated that Sovaldi protected various cell types from Zika infection.

The authors of the new study found that Sovaldi exposure rescued dying, Zika-infected NPCs and also restored those cells' antiviral-linked gene expression.

In the mice, Sovaldi led to a significant reduction in Zika viral load compared with the animals that received a placebo injection. The fetuses of the mice that received the drug also did not show detectable replicating Zika virus compared with the offspring of the mice that received the placebo.

The researchers concluded that their study findings, which they stressed were preliminary, supported further investigation of Sovaldi as a potential treatment for adults infected with Zika, including pregnant women.

To read a press release about the study, click here.

To read the Washington Times article, click here.

To read the study, click here.
