Precautionary Antiviral Therapy Prevents Chronic Hepatitis C in Transplant Recipients

The short treatment could make transplantation of organs from donors with HCV more safe, effective and economical.

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A short, preemptive regimen of direct-acting antivirals prevented chronic hepatitis C virus (HCV) infection in all recipients of organ transplants from donors with the virus, according to findings from a multicenter study presented at the International Liver Congress in London.

As a result of the opioid overdose crisis, donor organs have become more available in recent years. But people who inject drugs have a high prevalence of hepatitis C, and donor organs from those who die of overdoses may harbor the virus, which is usually transmitted to the recipient.

In the past, organs from donors with hepatitis C were reserved for recipients who also had HCV. But improvements in direct-acting antiviral (DAA) therapy have made transplants of these organs feasible for people without hepatitis C at the same time as the number of people with HCV who need a transplant has fallen. Using organs from donors with HCV can lead to shorter waiting times on the transplant list, and recipients can be treated with antivirals should they develop hepatitis C after the procedure. But it may be possible to prevent infection with DAA therapy prior to a transplant.

Bashar Aqel, MD, of the Mayo Institute of Medicine in Phoenix, and colleagues sought to determine whether a short, preemptive course of antiviral therapy would prevent transplant recipients from acquiring HCV.

The researchers tested an eight-day regimen of Mavyret (glecaprevir/pibrentasvir) and Zetia (ezetimibe) for transplant recipients who received organs from HCV viremic donors. Mavyret is a DAA combination pill that is active against all HCV genotypes and safe for people with kidney disease. Zetia, typically used to lower cholesterol, helps prevent entry of the virus into liver cells.

A total of 38 people who had consented to a transplant from a donor with HCV agreed to participate in the study. The average age was 60 years, and 63% were men. Most people (32) received a kidney transplant, three received a heart transplant, two received a kidney and a

pancreas and one received a kidney and a heart. All organ donors had HCV viremia, or detectable HCV RNA viral load; the median donor age was 35.

The first dose of the combination regimen was administered a few hours before the transplant and treatment continued for seven days thereafter. HCV RNA was measured regularly for 24 weeks after the transplant, and participants were followed for a year to assess survival.

About three quarters of the participants developed transient HCV viremia during the first few days after their transplant, and several had detectable HCV RNA seven days after transplantation. Four people still had a detectable viral load at two weeks post-transplant, one of whom remained detectable even at three weeks. But all recipients achieved an undetectable HCV viral load by four weeks post-transplant and were still negative for HCV RNA at 13 weeks—a sustained virological response rate of 100%. None developed chronic hepatitis C.

The preemptive treatment was safe and well tolerated, and all participants completed the full eight-day course. One person who received a kidney transplant and achieved HCV viral clearance later died due to graft rejection.

The current standard of care involves a full course of reactive DAA therapy for eight weeks or more once HCV viremia is diagnosed in a transplant recipient. But the researchers noted that this protocol may result in transplant rejection and liver and kidney damage. What's more, insurance requirements can sometimes lead to a delay in receiving antiviral therapy. Administering early treatment for a shorter period saved $36,000 per patient.

This approach appears to be cost effective and will potentially eliminate the risk of post-transplant complications from HCV transmission and enhance the use of HCV viremic grafts, the researchers concluded. The high safety, efficacy and economy of the shortened regime could help reduce waiting times for transplant recipients and increase the usability of organs from donors with HCV.

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