UMMC at Forefront of Milestone Advances in Hepatitis C

With an urban population exhibiting numerous risk factors for the silent killer hepatitis C, University of Maryland specialists have taken aim at the surprisingly prevalent virus with leading-edge research and community programs — just as FDA approval has been granted for a stunningly advanced therapy that could skyrocket the condition's cure rate.

The first direct-acting agents (DAA) for hepatitis C were approved in the United States in 2011, with two new drugs coming to market in late 2013 and a combination DAA was approved in October 2014 that is free of side effect-heavy interferon, which deterred many from treatment.

The top cause of liver cancer and cirrhosis in the United States, hepatitis C virus (HCV) accounts for a significant percentage of liver transplants performed at the University of Maryland Medical Center (UMMC) each year. But a team of physicians encompassing the Division of Hepatology and Institute for Human Virology has ramped up efforts to attack HCV before it causes extensive liver damage with treatments that are progressively more effective and better tolerated among patients.

The Medical Center's "headquarters" for hepatitis C treatment recently moved to the Midtown campus, making it a convenient location for the neediest patient population.

"There's an urgency to get treatment underway within Baltimore as well as the rest of Maryland because of the existing number of cases we have," says Rohit Talwani, M.D., an assistant professor of medicine at University of Maryland School of Medicine who concentrates on human virology. "Certainly, just given the prevalence of injectable drug use in Baltimore, it's a big problem in our state even though the reporting and nuances of the numbers of new cases aren't well-quantified. It's enough of a problem that these new medications can't have come soon enough."

MOST UNAWARE OF INFECTION

About 3.2 million Americans are infected with HCV, according to the CDC, though experts contend the actual number may be much higher because many of those infected are unaware of the problem. Causing about 15,000 deaths each year in the United States, the virus is spread primarily through contact with the blood of an infected person and is often transmitted by shared needles or injectable drug paraphernalia. Sexual contact is a less-frequent mode of transmission, as is sharing personal items such as razors or toothbrushes.

Baby Boomers, who were born between 1946 and 1964, are disproportionately impacted by HCV, with 1 in 30 infected — most of whom have no idea, according to the CDC. Boomers account for more than 75% of cases and are five times more likely than other adults to become infected because of risk factors such as prior drug use and pre-1992 blood transfusions, before widespread screening was implemented. Symptoms are often silent and may not appear until liver damage is severe.

"Up to 80% of those infected don't know about it because they were never tested. It means they're not linked to care ... and in Baltimore and the Washington, D.C., area, it's an even larger problem," says Shyam Kottilil, M.D., Ph.D., a professor of medicine at University of Maryland School of Medicine, who recently came to the University of Maryland from the Laboratory of Immunoregulation at the National Institutes of Allergy and Infectious Disease at the National Institutes of Health (NIH), where his work focused extensively on HCV.

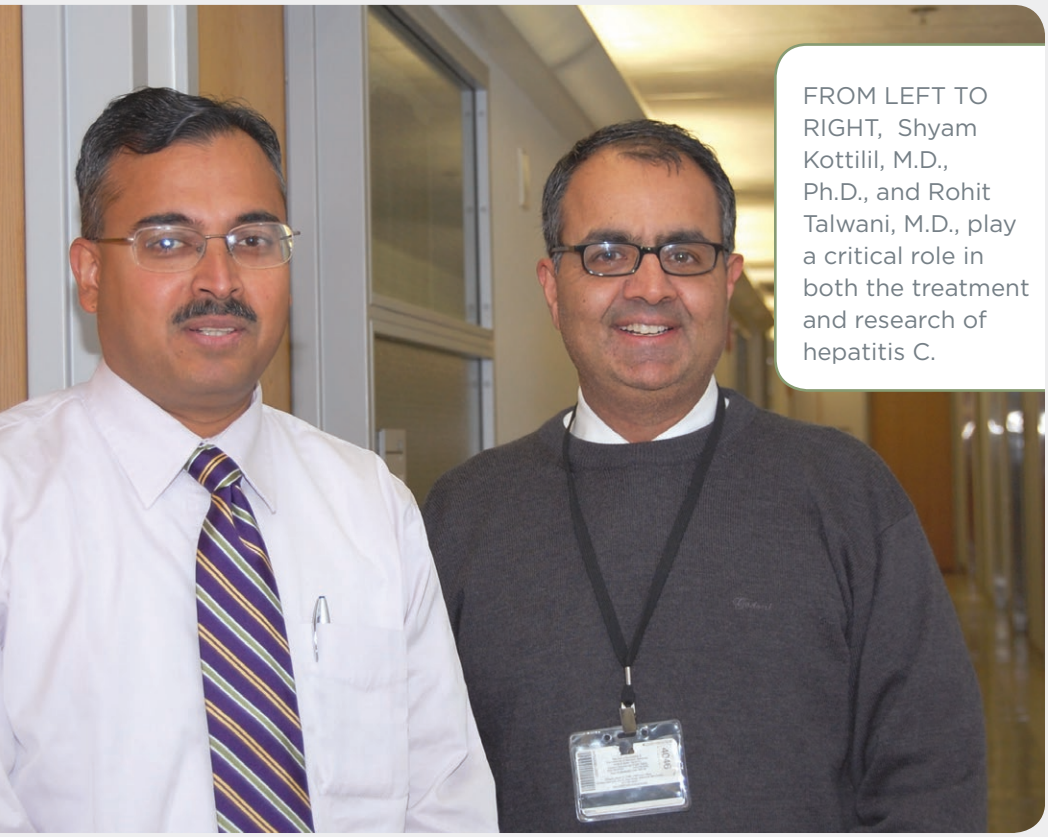
"While they're unaware of the infection, they can transmit it — it's like a ticking time bomb," Dr. Kottilil adds. "Overall, about 20% of patients will develop scarring over their entire liver, and about 25% will go into liver failure or liver cancer. The cost of taking care of a patient with liver failure is astronomically high."

BREAKTHROUGH DRUGS APPROVED

Over the past two decades, most treatments for hepatitis C involved lengthy regimens of various forms of interferon, often in combination

KEY POINTS:

- UMMC on leading edge of treatments for hepatitis C virus (HCV)
- Silent virus responsible for large number of liver transplants at UMMC each year
- Urban Baltimore-D.C.-area population exhibits higher risk factors for infection
- UMMC physicians mount comprehensive efforts in HCV research
- New interferon-free therapies better tolerated and boost cure rates



FROM LEFT TO RIGHT, Shyam Kottilil, M.D., Ph.D., and Rohit Talwani, M.D., play a critical role in both the treatment and research of hepatitis C.

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>
> - Shyam Kottilil, M.D.

with other drugs such as ribavirin. But interferon notoriously causes an array of miserable side effects — such as fatigue, vomiting and severe depression — that, combined with required frequent injections, drove the vast majority of HCV patients away from treatment.

In 2011, the FDA approved two less burdensome DAA drugs that work by hindering replication of the virus. But the advent of interferon-free treatment in the past year for hepatitis C genotype 1, the most common type of infection, heralded a welcome era — and an expensive one. The oral drug approved in October 2014, Harvoni (sofosbuvir/ledipasvir), costs about $94,500 for a typical 12-week treatment course, putting it out of reach for many underserved populations. But Harvoni was so effective in clinical trials that it cured hepatitis C after three months of treatment in about 94% of patients using it.

"Now, with the oral DAAs, we're gradually moving away from interferon," Dr. Talwani says.

TOP-NOTCH TEAM FOR RESEARCH, TREATMENT

Drs. Talwani and Kottilil are integral parts of a formidable team at UMMC in hepatitis C research and treatment. Dr. Talwani is leading the clinical trials program evaluating DAAs against HCV at UM's renowned IHV, the first center in the country combining basic science, epidemiology and clinical research to fast-track development of diagnostic and therapeutic tools for a variety of chronic and fatal viral and immune disorders.

Meanwhile, Dr. Kottilil has continued his extensive HCV research — begun at the NIH and widely published in scientific journals — to University of Maryland as well as programs in the Baltimore-D.C. metro area that work with hepatitis C patients. While the new therapies bring great hope, both physicians understand that many challenges remain.

"We can cure a lot of people, but the big problem is we still have to find out who they are, make sure they know they need to be treated and then have us treat them," Dr. Kottilil says. "Ultimately it comes down to money and logistics — these medications are going to be expensive. We have all the treatment available; the next step is how you make this happen."

A big advocate for internists to take a more active role in treating HCV patients without advanced cirrhosis, Dr. Kottilil recommends these doctors access a web tool offering HCV treatment and management guidelines that was developed by the American Association for the Study of Liver Diseases and the Infectious Disease Society of America in collaboration with the International Antiviral Society. It's at *http://hcvguidelines.org*. ✚

Appointments at the Midtown campus practice can be made by calling **410-225-8083**.