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Building the case for a national hepatitis B treatment program in China

Rachel Leslie on November 4th, 2015 No Comments

An estimated 100 million people in China are living with chronic hepatitis B infection, making it the most prevalent life threatening disease in the country. If left untreated, hepatitis B can lead to serious liver damage and is the leading cause of liver-related cancer and deaths in China. Despite the availability of effective therapies, there is no national policy in place to cover hepatitis B treatment and many patients, particularly those with rural health plans, can't afford it.

Now, in the first comprehensive, independent study of its kind, researchers at Stanford and the University of Michigan have published a cost-effective analysis of all available treatments – branded and generic – for chronic hepatitis B in China. The analysis, published today in *PLOS ONE*, quantifies the economic value and potential life-saving benefits of implementing a national treatment strategy in China.

"If China can successfully treat hepatitis B, the rest of the world will follow"

The paper is also the first to provide cost thresholds, meaning the specific price point at which a particular drug would be cost-effective or offer cost-savings.

"Health insurance programs in China don't always cover the most effective medications," said Stanford research associate Mehlika Toy, PhD, lead author of the study. "In comparing the potential cost-effectiveness of all available treatments, we aim to provide policy-makers in China with the evidence to support the development and implementation of a viral hepatitis treatment program, and information to help support drug pricing negotiations."

In their analysis, the researchers compared eight different treatment strategies using a statistical model to simulate disease progression and long-term health outcomes. The analysis evaluated chronic hepatitis B patients who had not received prior treatment, but would be eligible for treatment under current international and World Health Organization guidelines.

Costs were determined based on estimated medical management and related costs associated with disease complications, such as cirrhosis (scarring of the liver) and liver cancer, as well as generic and brand drug costs.

The findings showed that certain therapies performed better than others and that not treating at all resulted in the highest health care costs and the worst health outcomes, compared to other strategies. For example, it was shown that 65 percent of non-cirrhotic patients with active hepatitis associated with high virus concentrations (HBeAg positive) would die of hepatitis B-related liver disease in their lifetime if not treated. Alternately, approximately 60 percent of those deaths could be averted if treated with one of two highly potent, low-resistance drugs, entecavir and tenofovir.

Treatment with entecavir or tenofovir was shown to significantly avert hepatitis B-related mortality and liver cancer across all treatment groups and resulted in 5.5 to 12.1 quality adjusted life years (QALYs), a measure of disease burden based on healthy years of life gained.

"These QALY gains are impressive, since few treatments for chronic non-communicable diseases or chronic infectious diseases result in such a gain in healthy life years," the authors wrote.

Despite the significant gains in health outcomes, under the current drug pricing in China, entecavir and tenofovir remain out of reach for most patients and are often not prescribed as the first-line therapy. But implementation of a national treatment strategy could potentially change that.

Branded tenofovir is available to the Chinese public-health system for the treatment of HIV/AIDS at the cost of less than $30 per month, but the price of the same medication to treat hepatitis B is more than 8 times higher at $240 per month. If China were to adopt a national treatment program, it could mean higher bargaining power with drug manufacturers and potentially result in significant cost savings.

Building a case for a national hepatitis B treatment strategy in China is strengthened considering that China accounts for almost half of the global burden of disease and accounts for nearly 400,000 hepatitis B-related deaths per year. And, at a time when the WHO is calling all nations to get on board with a Global Hepatitis Action Plan, the modeling used in this study could be adapted for other high endemic countries seeking to develop national treatment programs.

"We think China can be a model for the world, not only in hepatitis B newborn vaccination, which they have done really well, but in treatment of chronic hepatitis B," Samuel So, MD, director of the Stanford Asian Liver Center and senior author of the study, told me. "If China can successfully treat hepatitis B, the rest of the world will follow."

Rachel Leslie is the communications officer at Stanford's Center for Innovation in Global Health.

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