



Genotype 3

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Forward

Up until recently genotype 3 has been one of the most difficult genotypes to treat with direct acting antiviral medications. Now there are treatments that can cure more than 90% of people who are treated. It is important to treat people with genotype 3 because it can contribute to the development of steatosis (fatty liver disease) and insulin resistance, both of which can directly influence HCV disease progression including cirrhosis and liver cancer.

Prevalence

The worldwide prevalence of hepatitis C is 150-170 million people. But the real prevalence is unknown since most countries have an inadequate surveillance system in place, if any. In this respect, understanding the real prevalence of HCV genotype 3 is difficult, but it is estimated that about 55% (~95 million) of all cases of hepatitis C are genotype 3. The highest concentration of genotype 3 is in Southeast Asia and the Western Pacific countries. HCV genotype 3 is also the most common genotype in India and Pakistan, and accounts for about 30% of the infected population of Greece, Poland, and the Netherlands.

Interestingly, genotype 3a has been found to have existed 200 years ago, and just recently it has been found to follow trends in injection drug use throughout the world. This trend began in the mid-1970's in Thailand and in the Vietnam war and traveled through the injection drug community in Europe and the United States.

Disease Progression

HCV genotype 3 has been found to cause steatosis (fatty liver disease), and there is some evidence that it can cause insulin resistance—a precursor to diabetes. The relationship between genotype 3 and steatosis is not fully understood, but it is believed to be associated with the level of HCV RNA (viral load). The exact cause is unknown; what is known is that when people with HCV genotype 3 are cured with HCV antiviral treatment, the level of steatosis is reduced or completely resolves.

On less firm ground is the correlation of genotype 3 with insulin resistance and diabetes. But it does seem that people who are cured with HCV antiviral medications have improved insulin resistance and reduced incidence of diabetes. More studies are needed to completely prove this theory because it has been proven that there is no relationship between HCV and diabetes—at least in non-genotype 3 people.

Steatosis also increases the risk of disease progression, cirrhosis and liver cancer. The U.S. Veterans Affairs (VA) recently conducted a study of 110,484 patients with hepatitis C of whom 8,337 had genotype 3. The study found that compared to people with genotype 1, patients with geno-

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HCSP FACT SHEET

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The information in this fact sheet is designed to help you understand and manage HCV and is not intended as medical advice. All persons with HCV should consult a medical practitioner for diagnosis and treatment of HCV.

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type 3 were 31% more likely to develop cirrhosis and 80% more likely to develop liver cancer. These results point to the need for more aggressive medical management and the development of cheaper drugs to treat people with genotype 3.

The combination of direct-acting antiviral medications with and without ribavirin can cure the majority of people with hepatitis C genotype 3.

To find out the current treatment guidance provided by the American Association for the Study for the Liver Disease (AASLD) and the Infectious Diseases Society of America (IDSA), in collaboration with the International Antiviral Society--USA (IAS-USA) at <http://www.hcvguidelines.org/>

Drugs in Development

There are many drugs in development to treatment genotype 3. See the publications below for more information.

Related publications:

HCV Medications Blog

<http://hepatitiscmedications.hcvadvocate.org/>

HCV Genotype, Quasispecies and Subtype

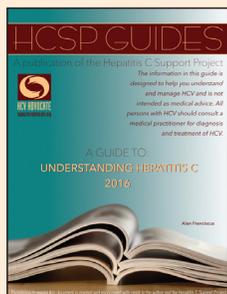
http://hcvadvocate.org/hepatitis/factsheets_pdf/genotype.pdf

HCV Advocate Drug Pipeline

<http://hcvadvocate.org/treatment/drug-pipeline-monthly-report/>

For more information

- **Centers for Disease Control and Prevention**
www.cdc.gov/Hepatitis
- **National Digestive Diseases Information Clearinghouse (NDDIC)**
<https://www.niddk.nih.gov/health-information/health-topics/liver-disease/hepatitis-c/pages/ez.aspx>
- **Veterans Administration:**
http://www.hepatitis.va.gov/as_a_standard_one
- **InQuick Reference Guide - FDA Approved Medications**
<http://hcvadvocate.org/treatment/drug-pipeline/>



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