Hepatitis C Infection

Hepatitis C Virus (HCV) infects 3% of the world’s population. Over 170 million chronic carriers. Approximately 2.7 million Americans (1.8%) are infected with HCV in addition to 30,000 new cases reported yearly. In the United States, 65% of persons with HCV infection are aged 30-49 years. There are several types of the virus that vary in geographical distribution and response to medications.

Genotype 1a occurs in 50-60% of patients in the United States. Genotype 1b occurs in 15-20% of patients in the United States; this type is most prevalent in Europe, Turkey, and Japan. Genotype 1c occurs in less than 1% of patients in the United States.

Genotypes 2a, 2b, and 2c occur in 10-15% of patients in the
United States; are widely distributed and are most responsive to medication

Genotypes 3a and 3b occur in 4-6% of patients in the United States; most prevalent in India, Pakistan, Thailand, Australia, and Scotland

Genotype 4 occurs in less than 5% of patients in the United States; it is most prevalent in the Middle East and Africa

Genotype 5 occurs in less than 5% of patients in the United States; it is most prevalent in South Africa

Genotype 6 occurs in less than 5% of patients in the United States; it is most prevalent in Southeast Asia, particularly Hong Kong and Macao

Transfusion of blood contaminated with HCV was once an important source of transmission. Since 1990. Persons who inject illegal drugs with non-sterile needles or who snort cocaine with shared straws are at now at the highest risk for HCV infection.

Transmission of HCV to health care workers may occur via needle-stick injuries or other occupational exposures. Nosocomial patient-to-patient transmission may occur by means of a contaminated colonoscope, via dialysis, or during surgery, including organ transplantation before 1992.

HCV may also be transmitted via tattooing, sharing razors, and acupuncture. The use of disposable needles for acupuncture, which has become standard practice in the United States, eliminates this transmission route. Other uncommon routes of transmission of HCV, which affect less than 5% of the individuals at risk, include high-risk sexual activity and maternal-fetal transmission. 10% unknown.

Tests for detecting hepatitis C virus (HCV) infection include:

- Hepatitis C antibody testing
- Recombinant immunoblot assay
- Qualitative and quantitative assays for HCV RNA
- HCV genotyping

**Hepatitis C Treatment**

Significant progress in the treatment of hepatitis C infection took place in the past year. Several medications or combinations can lead to cure in about 10 weeks in the majority of hepatitis C infected patients. Medications include Sovaldi (sofosbuvir 400 mg), Harvoni (ledipasvir (90 mg)/sofosbuvir 400 mg) or Vikera pak, with or without ribaverin.

One treatment regimen is a single daily tablet of ledipasvir 90mg / sofosbuvir 400mg for 8 to 24 weeks (according to genotype, viral load and functional status of the liver).

**Hepatitis C and Reproduction**

* Significant effort is excreted by reproductive endocrinologist to detect hepatitis C and other viral infections and to prevent the transmission of hepatitis C to women and babies during reproduction.

* Intimate partners: both partners are screened for HCV antibodies. If one partner is infected, he or she is referred for treatment with one of the modern drug regimens for 8 to 12 weeks before fertility treatment. If viral load does not drop to an undetectable level then a protocol exists for infected men to test semen for the virus and use the frozen sperm for IVF and ICSI to minimize transmission to mother and baby.

* Egg and sperm donors: extensive history, exam and screening for donors is performed. Those with high risk factors are excluded. Donors with no risk factors are further tested using hepatitis C antibody and hepatitis C RNA performed in an FDA approved lab. Sperm donors are tested before sperm donation, sperm are quarantined for 6 months and the donor is retested.
again before releasing sperm. Egg donors are tested in an FDA approved lab within one month of egg retrieval. So far, there is no reported case of hepatitis C transmission after sperm or egg donation.

**Gestational carriers:** Intended parents are screened in an FDA lab for viral infections to minimize transmission to surrogates. Gestational carriers are also screened to prevent transmission to the baby.

Frozen sperm, eggs and embryos: liquid nitrogen in storage tanks can very rarely transmit infection. All patients are screened before storage. Tissues and cells can be stored in nitrogen vapor and sealed devices. Liquid nitrogen can also be filtered and sterilized using ultraviolet rays.