SUMMARY

The world health organization (WHO) estimates 170 million individuals worldwide are infected with hepatitis- c virus (HCV). However, the prevalence of HCV infection varies throughout the world, it was reported that mean prevalence of HCV antibodies in persons in Egypt is 22%.

HCV is one of the most important causes of chronic liver disease and is the most common indication for liver transplantation. The hepatitis- C virus (HCV) is transmitted by blood-to-blood contact.

Chronic hepatitis C infection predisposes patients to the development of diseases involving other organ systems including the kidneys, the skin, eyes, joints, immune system, and the nervous system.

HCV infection has been associated with several eye disorders, Keratoconjunctivitis sicca (dry eyes) is part of Sjogren's syndrome. A few cases of Mooren's ulcer and HCV infection have been reported. Mooren's ulcer is a rapidly progressive, painful ulceration of the cornea.

Interferons (IFNs) were discovered 50 years ago as a natural defense system in the human body because of their antiviral activity. The IFN system consists of cells that produce and secrete IFNs as a response to viral infection or other foreign stimuli and cells that respond to IFNs by creating an antiviral state. Secreted interferon binds to cells and induces them to produce effector proteins that block various stages of viral replication. There are two main types of interferon α and β interferons classified as type I and γ interferon classified as type II. Recombinant IFNα and recently its pegylated form (Pegasys), either alone or in combination with an antiviral agent, are

used in the treatment of chronic hepatitis C virus infection. Interferons have variable complications as Neuropsychiatric disorders, bone marrow toxicity, increase suscibtability to infections, cardiovascular disorders, cerebrovascular disorders, hepatic failure and hepatitis exacerbations, hypersensitivity, endocrine disorders, autoimmune disorders, pulmonary disorders, colitis, pancreatitis and ophthalmic complications.

Ribavirin is a synthetic nucleoside analogue. The mechanism by which the combination of Ribavirin and an interferon product exerts its effects against the hepatitis C virus has not been fully established. It has been shown to affect the virus and/or the host, including the immune response of the host to the virus. Since ribavirin is a nucleoside analog, its incorporation into the viral genome can lead to mutagenesis. In reacting with the HCV-RNA-dependent RNA polymerase, ribavirin can pair with cytidine and uridine, thus acting as a mimic of guanine and adenine and blocking viral replication, a mechanism called 'error catastrophe. Ribavirin tablets in combination with peginterferon alfa-2a are indicated for the treatment of adults with chronic hepatitis C virus infection who have compensated liver disease and have not been previously treated with interferon alpha. Ribavirin is contraindicated in pregnant patients and also patients with hepatic decompansation. Side effects of ribavirin include anemia, teratogenic effect, hepatic failure, hypersensitivity, pulmonary complications, neutropenia and depression.

Retinopathy is seen in 18–86% of patients who are receiving combined interferon and ribavirin therapy. It occurs between 2 weeks and 5 months from the beginning of treatment, most frequently between 4 and 12

weeks. A higher incidence of retinopathy has been observed in HCV patients with concurrent hypertension or diabetes.

The mechanism of retinal damage with interferon therapy is not clear. Hepatitis C is associated with a variety of hematologic and immunologic abnormalities, including thrombocytopenia, arteritis and cryoglobulinemia. Individuals with these abnormalities might be predisposed to develop ischemic retinopathy when placed on interferon therapy. Interferon therapy is associated with retinal circulatory changes in the form of increase retinal blood flow(RBF), and wall shear rate(WSR).

Multiple ophthalmic complications were reported due to combined interferon and ribavirin therapy in the form of dry eye ,tricomegaly, subconjunctival hemorrhage, cotton wool spots, intraretinal hemorrhage ,retinal vein occlusion, retinal artery occlusion, anterior ischemic optic neuropathy, cystoid macular oedema and Vogt- Kayanagi -Harada like syndrome.

Most of interferon ocular side effects are asymptomatic and reversible and don’t require stoppage of treatment just a careful monitoring should be performed in the presence of any ocular sign. There is no classification for IFN-induced retinopathy, like diabetic retinopathy. Therefore there is no rule for stoppage the use of interferon in patients who develop retinopathy or any other ocular side effects. Sometimes crucial stoppage of treatment and even invasive ophthalmic intervention should be done if there is threatening of the vision.