1. Introduction

Liver disease, particularly viral hepatitis, is increasingly common. The most frequent causes of long-term, or chronic, viral hepatitis are persistent infections with the hepatitis B or hepatitis C virus. Worldwide, 400 million people are chronic carriers of the hepatitis B virus [1]. Each year, between 500,000 to 1.2 million people die from progression of this viral infection, making it the 10th leading cause of death worldwide [1]. An effective vaccine against the hepatitis B virus is available. As vaccine programs are implemented more widely, the global burden of disease caused by the hepatitis B virus should decrease.

Currently, infection with the hepatitis C virus is less common than with the hepatitis B virus. Because there is no effective vaccine against the hepatitis C virus, infection with the hepatitis C virus may become more common than infection with the hepatitis B virus in the future. Of the 4 million people newly infected with the hepatitis C virus each year, approximately 70% go on to develop the long-term disease of chronic hepatitis [2].

Chronic hepatitis over a long period of time damages liver cells which may lead to irreversible scarring, which is called cirrhosis. Besides chronic infection, cirrhosis of the liver may also be caused by toxins, such as alcohol, or by genetic, vascular or biliary disorders.

2. Contraceptive use in liver disease

Women of reproductive age with liver diseases, including chronic infection with the hepatitis B or C virus, typically remain fertile and have the same contraceptive needs as other women of reproductive age without liver disease. Hormonal contraceptives, such as oral pills, subcutaneous implants, injectables, skin patches and vaginal rings, consist of an estrogen, a progestogen or a combination of both. Because these hormones may have effects on and are metabolized by the liver, certain considerations must be taken into account when helping women with liver disease choose an appropriate contraceptive method. The specific points that must be considered are the following:

The liver has great capacity to tolerate damage without its function being affected [3,4]. Therefore, women with mild liver disease such as chronic viral hepatitis and mild cirrhosis can safely use hormonal contraceptives.

There are two types of estrogens used in hormonal contraceptives: synthetically created estrogens (ethinylestradiol) and naturally occurring estrogens (estradiol).

Most combined hormonal methods including the pills, the patch and the vaginal ring, contain synthetic ethinylestradiol. Ethinylestradiol is much more potent than the naturally-occurring estrogens, which means that it remains present in the blood for a longer duration after administration and has a greater effect on the liver [3,4].

Routes of administration other than the oral one were developed to minimize the effect on the liver by using systemic routes so as to enable the hormones to affect target organs through the bloodstream prior to them reaching the liver. It is now appreciated, however, that the effects of ethinylestradiol on the liver are the same, regardless of whether it is given by pill, transdermal patch or vaginal ring [5–7].

Monthly injectables (such as Cyclofem or Mesigyna) are the only combined methods which contain the naturally occurring estrogen, estradiol. Estradiol is broken down by the liver very quickly, and therefore, any effects on liver function are minimal [3,4].

All hormonal contraceptives contain progestogens. The liver processes progestogens and estrogens differently because liver cells have estrogen receptors but no progestogen receptors [8–10]. Most hormonal contraceptives have low doses of progestogens which do not directly affect liver function.
function. However, some progestogens at high doses (norethindrone acetate and norethisterone enanthate) are metabolized to compounds that may have a small effect on liver function although of a lesser degree than the effects of estrogens [11].

In view of this information, the World Health Organization expert Working Group on family planning guidance recommended [12]:

In women with mild, compensated cirrhosis, chronic viral hepatitis or carriers of the hepatitis virus, there is no restriction for the use of any hormonal contraceptive method.

In women with acute hepatitis or a flare of hepatitis, the risks usually outweigh the benefits for initiating the use of combined hormonal contraceptives, and in the case of severe disease, combined hormonal contraceptives should not be used. For women who had begun using combined hormonal methods before being diagnosed with acute hepatitis or a flare of hepatitis, the benefits of continuing contraception usually outweigh the risks.

Progestogen-only contraception, however, may be used in these conditions without restriction.

In women with severe, decompensated cirrhosis, the risks usually outweigh the benefits for progestogen-only and combined injectable use while all other methods of hormonal contraception (pills, patch and vaginal ring) are an unacceptable risk to health and should not be used.

References