HIV and hepatitis C

KEY POINTS:

- 2.3 million people have HIV and hepatitis C co-infection - 6.2% of people living with HIV globally.
- Both hepatitis C and HIV are transmitted through shared injecting equipment, so scale up of harm reduction and needle and syringe programmes are key to prevent both HIV and hep C.
- Treatment for HIV is now enabling people to live longer, but liver disease in people with HIV and hepatitis C co-infection is becoming a major cause of morbidity and mortality.
- Although treatment for hepatitis C is available, improving access to testing and treatment remains a major concern.

Explore this page to find out more about the epidemiology of co-infection, the impact of HIV on hepatitis C, prevention programmes, treating hepatitis C and treatment programmes.

It is estimated that between 130 and 150 million people are living with hepatitis C.1 It is a viral infection that damages the liver, one of the body’s most important organs. While many people do not have any symptoms, hepatitis C can cause fatigue, loss of appetite, muscle and joint pain, mild cognitive problems and depression.

Advanced disease can cause severe scarring of the liver (cirrhosis), liver cancer (hepatocellular carcinoma) and liver failure. Each year, an estimated 700,000 people die from complications of hepatitis C.2

There is considerable overlap between hepatitis C and HIV, as both blood-borne viruses can be transmitted in similar ways and affect some of the same social groups. As people living with HIV live longer, liver disease in people with HIV and hepatitis C co-infection is becoming a major cause of morbidity and mortality.
The epidemiology of co-infection

An estimated 2.3 million people have HIV and hepatitis C co-infection - globally, approximately 6.2% of people living with HIV also have hepatitis C. However this proportion varies considerably, according to risk group and world region.

People who inject drugs are most likely to have co-infection - 82% of HIV-positive people who inject drugs also have hepatitis C. In fact, over half of all co-infected individuals (1.3 million) are people who inject drugs. Developing models of care which meet the needs of people who inject drugs is a vital first step to providing an effective co-infection treatment programme.

Studies also show very high rates among prisoners living with HIV, although less data have been collected.

It is estimated that the prevalence of hepatitis C in other groups of people living with HIV is 6.4% in men who have sex with men, 4.0% in pregnant women and 2.4% in general population samples.

Geographically, the greatest burden is in eastern Europe, where around 600,000 people have co-infection. Nonetheless over 400,000 co-infected individuals are living in sub-Saharan Africa.

The impact of HIV on hepatitis C

The interaction between HIV and hepatitis C affects the transmission and natural history of hepatitis C. People who do not receive HIV treatment are less likely to spontaneously clear their hepatitis infection, have higher hepatitis viral loads and experience more rapid hepatitis disease progression than HIV-negative people.

On the other hand, antiretroviral therapy taken to treat HIV helps keep hepatitis C under control. Hepatitis outcomes are better in people who receive HIV treatment. Whereas response to the older generation of hepatitis C treatments was poorer in people with HIV, this is not the case with modern therapies.

Prevention programmes

Both hepatitis C and HIV are readily transmitted through the sharing of equipment used to inject heroin, crack cocaine and other drugs. Therefore, harm reduction services use the same approach to prevent transmission of both viruses in people who inject drugs.

Needle and syringe programmes should make sufficient quantities of sterile injecting equipment available. Opiate substitution therapy for people with drug dependency reduces the transmission of viral infections because it helps people inject drugs less often. It also helps engage people with healthcare.

WHO also recommends peer interventions with people who inject drugs. However it does not support psychosocial prevention interventions. Research suggests that combined programmes, rather than singular approaches, are more effective.

Despite the scientific evidence in favour of harm reduction strategies, punitive instead of therapeutic approaches for people who inject drugs are still frequent in many countries. Criminalisation and stigmatisation of people who inject drugs hinders prevention.

A scale-up of hepatitis C treatment in people who inject drugs would reduce viral loads and make
transmission less likely.9

Case studies

An early harm reduction success story comes from Switzerland. Responding to a rapid rise of HIV infections in the late 1980s, needle and syringe programmes and low-threshold opiate substitution therapy were provided in almost all cities. Supervised drug consumption sites were set up in bigger cities. The country’s drug policy is based on ‘four pillars’: policing (supply reduction), demand reduction, harm reduction, and prevention of drug use. The measures have kept hepatitis C infections under control and also had a dramatic impact on HIV infections.

Health professionals and advocates have been able to implement harm reduction policies in otherwise conservative countries, such as Malaysia. There has been a great expansion of methadone maintenance and needle exchange programmes there, although overall coverage remains insufficient. An innovative needle and syringe programme in Kenya has been able to increase the use of sterile equipment at last injection from 52% to 88% in three years.10

Prevention for men who have sex with men

In addition to the ‘classic’ hepatitis C epidemic associated with sharing injecting equipment, a ‘new’ epidemic in which the virus is transmitted during sex between men has emerged.11 Outbreaks are concentrated in urban areas among gay men living with HIV, with serosorting (sexual networks of HIV-positive men) and recreational drug use likely contributing to transmission behaviour.

Little progress has been made in the development of effective prevention approaches for men who have sex with men.12 The frequency with which men are re-infected with hepatitis C after successful treatment underlines the need for effective prevention approaches.

Treating hepatitis C

The first treatment for hepatitis C, interferon-alpha, was introduced in 1989. Until 2011, treatment relied on injections of pegylated interferon and ribavirin tablets, a regimen which many patients found difficult to take.

But a better understanding of the life cycle of the virus and important efforts in drug development have propelled significant developments in hepatitis C treatment. The new generation of treatments are known as directly acting antivirals (DAAs): ten different drugs, in four different drug classes, are approved by regulators.13

Treatment with DAAs is a vast improvement on the older treatments. Treatment is taken for a shorter period of time, is easy-to-take with oral tablets only, has few side-effects, and results in a sustained virological response (cure) for more than 90% of people treated.

Treatment guidelines

Guidelines issued by the World Health Organization (WHO) in April 2016 recommend a four ‘preferred regimens’, each including the drug sofosbuvir, in order to simplify treatment decisions.14 Depending on the regimen, treatment may last 12 or 24 weeks.

Choice of drug regimen depends on which of the six genotypes the patient has. Different genotypes, each with a different genetic composition of the virus, are more common in different parts of the world. Each patient requires genotype testing before treatment can be provided.

Looking ahead, the introduction of ‘pan-genotypic’ therapies, capable of treating hepatitis C of all...
genotypes will streamline treatment programmes.

**Treating hepatitis C in people with HIV co-infection**

Directly acting antivirals (DAAs) have good outcomes for people previously considered ‘hard-to-treat’. This includes people with HIV co-infection. The outcomes of treatment in people with co-infection are comparable to those in people with hepatitis C alone - rates of sustained virological response (cure) are over 90%, even in individuals who have not responded to previous treatment and people with cirrhosis.

“There is no longer a need to consider HIV/HCV- co-infected patients as a special, difficult-to treat patient population,” WHO states in its guidance.15

The key issue that remains, WHO emphasises, is the potential for drug-drug interactions between medications for HIV and hepatitis C. When these may occur, the regimens for either infection may need to be altered.

Modern HIV medications rarely have the harmful effects on the liver that characterised some older drugs. Hepatitis C treatment is generally provided to individuals who are already taking HIV treatment.16

**Treatment programmes**

An important first step to providing treatment for people with hepatitis C and HIV co-infection is to diagnose infections. HIV services should routinely screen all patients for hepatitis C.

However, guidelines recommending screening are often poorly implemented, especially in low and middle-income countries. Hepatitis C testing may not be systematically provided to groups which have elevated rates of hepatitis C, such as people who inject drugs, prisoners, sex workers, and men who have sex with men.17

**Improving access for key populations**

Stigma and structural barriers may hinder access to healthcare for key populations.18 For example, the criminalisation of drug use contributes to the stigmatisation of people who inject drugs as individuals who do not deserve care. The World Health Organization states that equal access to healthcare and the protection of human rights are guiding principles for hepatitis treatment programmes.19

To ensure equitable access and engage key populations, clinical services may need to adapt their models of care. They may need to provide outreach services, be flexible around appointment requirements, train staff, and consult community organisations (including drug-user organisations).20

**Data for planning**

Epidemiological data are needed to plan hepatitis C treatment services. It is important to know the number of people with hepatitis C and with co-infection, the proportion diagnosed, the distribution of disease stages (patients with advanced disease will require more monitoring and will require treatment urgently) and the distribution of genotypes (influencing the drugs required).21

**Co-ordinated care**

People with hepatitis C and HIV co-infection may have other co-morbidities, requiring additional health care. Opiate dependency is common in people who inject drugs. Integrating opiate substitution therapy and harm reduction services with provision of hepatitis C and HIV treatment can improve outcomes.22 Patients may also have needs in relation to excessive alcohol use (which
People needing hepatitis C treatment may have unmet needs in relation to depression or other mental health issues. Meeting these needs may enhance patients’ adherence and engagement with care.

Some populations at risk of hepatitis C are also at risk of tuberculosis, especially people who inject drugs and prisoners. As well as TB screening, the side-effects and drug-drug interactions of HIV, TB and hepatitis therapies will need to be considered.

**Drug prices**

The excessively high price of directly acting antivirals has prompted debates about pricing, affordability and limited access. In high-income countries, the cost to treat a single patient can reach US$100,000. As a result, health systems in even the richest countries have rationed or restricted the provision of hepatitis C treatment to the sickest patients.

The price paid varies significantly between countries. Some countries have used legal tools such as compulsory licenses and patent oppositions in order to permit generic versions of the drugs. The low price of generics (less than $1000 per patient) has enabled a handful of countries, such as Egypt and India, to scale up treatment of hepatitis C. However legal manoeuvring by pharmaceutical companies and a lack of political will mean that very few countries have access to generic DAAs.

Moreover, middle-income countries such as Brazil, Russia, Ukraine and China (which have large populations living with hepatitis C) cannot use generic drugs. When countries’ wealth is taken into account, drug prices are considerably higher in middle-income countries, especially those in central and eastern Europe.

The total cost of treating all patients with hepatitis C would be equal to at least a tenth of the current annual cost for all medicines in most countries. In countries where prices are high and the burden of disease is large, the total cost of treating all infected patients would be more than the cost of all other medicines put together.

In addition, as currently practiced, the clinical management of hepatitis C requires sophisticated laboratory capacity to diagnose infection, identify the genotype, assess fibrosis and monitor response to treatment. However in many countries, the costs of these tests is prohibitive or there are few laboratories that can perform them.

**Case study: Linkage to care in New York City**

The Check Hep C programme, hosted by four community-based organisations in neighbourhoods of New York where hepatitis C infection was relatively common, gave a key role to ‘patient navigators’ – people who supported patients to seek antiviral therapy for hepatitis C, adhere to treatment and connect with subsidised healthcare and medications.

More than half of the participants who were eligible for care began treatment during the project, 91% of whom were successfully cleared of the virus. The results demonstrate the important part navigators can play in improving outcomes for people with hepatitis C infection.

**A public health approach**

Hepatitis C treatment is currently provided in specialised centres by hepatologists. To expand
access, treatment will need to be provided by non-specialists in primary-care clinics. Large numbers of healthcare workers will need training in the clinical management of hepatitis C.

This is one of several ways in which simplified and standardised procedures could help bring hepatitis C treatment to scale - provided the cost of drugs and monitoring is reduced.

Photo credit: Flickr/Juan.Plaza

1. World Health Organization (2016) 'Hepatitis C factsheet'
2. World Health Organization (2016) 'Hepatitis C factsheet'
9. Martin NK et al. (2013) 'Combination interventions to prevent hepatitis C virus transmission among people who inject drugs: modeling the impact of antiviral treatment, needle and syringe programs, and opiate substitution therapy', Clinical Infectious Diseases; 57 2:S39-45
13. Childs K et al. (2016) 'Directly acting antivirals for hepatitis C virus arrive in HIV/hepatitis C virus co-infected patients: from ‘mind the gap’ to ‘where’s the gap?’, AIDS 30:7
15. World Health Organization (2016) 'Guidelines for the screening care and treatment of persons with chronic hepatitis C infection'
18. Treloar C et al. (2013) 'Understanding Barriers to Hepatitis C Virus Care and Stigmatization From a Social Perspective', Clinical Infectious Diseases, 57 (suppl 2): S51-S55
20. World Health Organization (2016) 'Guidelines for the screening care and treatment of persons with chronic hepatitis C infection'
23. Dolan K et al. (2016) 'Global burden of HIV, viral hepatitis, and tuberculosis in prisoners and detainees', Lancet
24. mapCrowd (2016) 'Dying at these prices: generic HIV cure denied'
25. mapCrowd (2016) 'Dying at these prices: generic HIV cure denied'
28. CATIE (2017), 'Patient navigators for hepatitis C patients found useful in New York City'

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