

Management of hepatitis C virus infections in intravenous drug users

G. Robaey¹, C. Matheï^{2,3}, F. Buntinx³, M. Vanranst⁴

(1) Division of Gastro-enterology and hepatology, Ziekenhuis Oost-Limburg, Genk, Belgium ; (2) Free Clinic, Antwerp, Belgium ; (3) Department of General Practice, University of Leuven, Belgium ; (4) Laboratory of Clinical and Epidemiological Virology, Department of Microbiology & Immunology, Rega Institute and University Hospitals, University of Leuven, Belgium.

Abstract

Intravenous drug use is a major route of hepatitis C virus (HCV) transmission. In Belgium, more than 70% of the intravenous drug users (IVDUs) are HCV seropositive. In the past, medical treatment of HCV-positive IVDUs has been controversial. However, current studies support that the anti-HCV therapy of IVDUs should be the same as in other HCV-infected patients. In prison populations, HCV screening and therapy has to be performed. Patients should be counseled about the benefits of alcohol abstinence, should be educated about safer injection techniques to avoid reinfection, and should be vaccinated to avoid hepatitis A or B co-infections. Treatment of HCV infections should not be withheld from patient populations with complicated social problems. Physicians should rather develop individual treatment and follow-up plans in order to optimize compliance in IVDUs. (*Acta gastroenterol. belg.*, 2002, 65, 99-100).

Key words : hepatitis, HCV-drug users, interferon, ribavirin, vaccination, prison.

Introduction

Therapeutic options for chronic hepatitis C virus (HCV) infections have been available for more than a decade. During that period, novel therapeutic schedules have emerged, increasing complete remission rates significantly. However, certain subgroups of patients remain more refractory to treatment.

In industrialized countries, intravenous drug use has become the major source of new hepatitis C infections since the nineties. In Belgium, 69 to 79% of the intravenous drug users (IVDUs) are seropositive for HCV (1,2). In the past, there was some reluctance to treat these patients. Nowadays, guidelines to treat them are becoming more permissive (3,4).

The scope of the problem

IVDUs are infected by sharing infected needles and syringes or other paraphernalia like cottons and spoons. Transmission seems to occur rapidly : in a study of Denis et al, it was demonstrated that almost 50% of intravenous drug users were infected within the first month of injecting. After one year this increased to 80% (1). It seems that HCV can also be transmitted by sharing materials for nasal instillation. Although the hepatitis C virus is not efficiently transmitted through sexual intercourse, specific sexual habits that involve contact with blood might contribute to the transmission of the virus in this particular population.

Co-infections with hepatitis A and B virus and the human immunodeficiency virus (HIV) are reported, the former due to suboptimal sanitary living conditions, the latter two by co-inoculation or by sexual behaviour (5). Forty-two percent of drug users were reported to have signs of previous hepatitis A infection versus 6% in controls (6,7). In Free Clinic Antwerp, a low threshold drug treatment centre, 45% of intravenous drug users had signs of previous hepatitis B infection, 45% had hepatitis A markers and 6% were HIV seropositive (personal communication).

In geographical regions with a predominance of HCV genotype 1b, non-1b genotypes are more frequently found among drug users. These non-1b HCV genotypes are more responsive to antiviral therapy.

HCV-positive IVDUs are often deprived of basic sanitary conditions and proper nutrition, and have less access to health care. For obvious reasons IVDUs cluster in prison facilities. There is also frequent alcohol abuse, a well known cofactor for development of liver fibrosis and cirrhosis. Part of drug users enter in treatment programs, which can include methadone substitution. Some of them still intermittently use illicit injectable drugs while being on a therapeutic program. At these moments, re-infection with HCV can occur.

Management of chronic hepatitis C in drug users

General measures include

1. IVDUs are to be informed of the risk of infection with HCV, and of its transmission routes. In the first place they should be strongly advised not to share any of the injection materials. Furthermore transmission of hepatitis C should be avoided by instructing them not to share shaving material and teeth brushes. Finally, they also should be made aware of the social and financial deleterious effects of their drug habits. In order to avoid sexual transmission by traumatic intercourse, the use of preservatives is recommended.
2. Abuse of alcohol and medication is to be avoided as these can increase liver function disturbances.

Correspondence : Dr. G. Robaey, M.D., Division of Gastro-enterology and Hepatology, Ziekenhuis Oost-Limburg, Schiepsse Bos 6, B-3600 Genk, Belgium.

3. Vaccination effectively prevents epidemics of hepatitis A and B. Even when a complete vaccination schedule could not be completed, good vaccination responses were obtained (8,9).
4. Collaboration between prisons and health care providers is mandatory. The clustering of individuals with hepatitis and other treatable illnesses in correctional facilities creates not only challenges but opportunities as well. Prisons may constitute sites for introducing public health interventions that will have a positive impact on hard-to-reach communities (10-17). Treatment of HCV-positive prisoners may be cost-effective to society in general.

Medical treatment

As in other patient groups, chronic hepatitis C infection in drug users responds to standard combination treatment with interferon alpha and ribavirin. Recently, a cohort of 60 patients with chronic hepatitis C infection after drug use were treated with this combination (18). Some patients were off intravenous drug use, some were treated with methadone substitution. Patients with uncontrolled active intravenous drug use are no candidates for medical treatment due to lack of compliance and a high risk of re-infection. An ongoing Belgian study indicates that selected patients infected after drug use can effectively be treated with pegylated interferon plus ribavirin (18). Favourable factors are the higher prevalence of HCV genotypes 2 and 3, as well as the generally young age of the patients (19). Patients with genotype 2 or 3 seem to respond equally well to the combination of interferon alpha plus ribavirin as to the combination of peginterferon alpha-2b plus ribavirin (19).

It is very important to motivate the patients infected after drug use during medical treatment. This should be performed by the general practitioner, the doctor caring for the patient under methadone substitution, and by public health workers caring for their social and personal problems. In centres where patients are isolated for detoxification, stimulation and acceptance by the social environment is of utmost importance.

References

1. DENIS B., DEBOBELEER M., COLLET T., PETIT J., JAMOULLE M., HAYENI A., BRENARD R. High prevalence of hepatitis C virus infection in Belgian intravenous drug users and potential role of the "cotton-filter" in transmission : the GEMT Study. *Acta Gastroenterol. Belg.*, 2000, **63** : 147-53.
2. MATHEÏ C., BUNTINX F., VAN DAMME P. Abstracts of the VIIth European Workshop on Virus Evolution and Molecular Epidemiology- Investigation of hepatitis C virus transmission among intravenous drug users. *Infect. Dis. Rev.*, 2001, **3** (3) : 146-157.
3. EDLIN B.R., SEAL K.H., LORVICK J., KRAL A.H., CICCARONE D.H., MOORE L.D., LO B. Is it justifiable to withhold treatment for hepatitis C from illicit-drug users ? *N. Engl. J. Med.*, 2001, **345** : 211 - 214.
4. DAVIS G.L., RODRIGUE J.R. Treatment of chronic hepatitis C in active drug users. *N. Engl. J. Med.*, 2001, **345** : 215- 217.
5. ZYLBERBERG H., POL S. Reciprocal interactions between human immunodeficiency virus and hepatitis C virus infections. *Clin. Infect. Dis.*, 1996, **23** : 1117-1125.
6. OCHNIO J.J., PATRICK D., HO M., TALLING N., DOBSOL S.R. Past infection with hepatitis A virus among Vancouver street youth, injection drug users and men who have sex with men : implications for vaccination programs. *Can. Med. Ass. Journal*, 2001, **165** : 293- 29
7. SKIDMORE S., PARRY J.V., NOTTAGE P. An investigation of the potential risk of an HAV outbreak in a prison population following the introduction of cases from a community outbreak. *Commun. Dis. Public Health*, 2001, **4** : 133-135.
8. MICHIELSEN P.P., VAN DAMME P. Hepatitis vaccination in patients with chronic liver diseases. *Acta Gastroenterol. Belg.*, 2000, **63** : 1-4.
9. ROTILY M., VERNAY-VAISSE C., BOURLIÈRE M., GALINIER-PUJOL A., ROUSSEAU S., OBADIA Y. HBV and HIV screening, and hepatitis B immunization programme in the prison of Marseille, France. *Int. J. STD. AIDS*, 1997, **8** : 753-759.
10. HEDOUIN V., GOSSET D. Infection par le virus de l'hépatite C en milieu carcéral. Etude prospective réalisée a Loos-lez-Lille. *Gastroenterol. Clin. Biol.*, 1998, **22** : 55-58.
11. HUTCHINSON S.J., GOLDBERG D.J., GORE S.M., CAMERON S., MC GREGOR J., MC MENAMIN J., MC GAVIGAN J. Hepatitis B outbreak at Glenochil prison during January to June 1993. *Epidemiol. Infect.*, 1998, **121** : 185-191.
12. Hepatitis B outbreak in a state correctional facility, 2000. *Morb. Mortal. Wkly Rep.*, 2001, **50** : 529-532.
13. DE GROOT A.S., STUBBERFIELD E. BICK J. Infections Behind Bars Hepatitis C : A Correctional-Public Health Opportunity. *Medscape Infectious Diseases*, 2001.
14. SPAULDING A., GREENE C., DAVIDSON K., SCHNEIDERMAN M., RICH J. Hepatitis C in state correctional facilities. *Prev. Med.*, 1999, **28** : 92-100.
15. TSANG T.H., HOROWITZ E., VUGIA D.J. Transmission of hepatitis C through tattooing in a United States prison. *Am. J. Gastroenterol.*, 2001, **96** : 1304-1305.
16. HABER P.S., PARSONS S.J., HARPER S.E., WHITE P.A., RAWLINSON W.D., LLOYD A.R. Transmission of hepatitis C within Australian prisons. *Med. J. Aust.*, 1999, **171** : 31-33.
17. WEILD A.R., GILL O.N., BENNETT D., LIVINGSTONE S.J., PARRY J.V., CURRAN L. Prevalence of HIV, hepatitis B, and hepatitis C antibodies in prisoners in England and Wales : a national survey. *Commun. Dis. Public Health*, 2000, **3** : 121-126.
18. ROBAEYS G., MATHEÏ C., VERRANDO R., BUNTINX F. HIDA project : hepatitis C in drug abusers (unpublished data).
19. MANNS M.P., MC HUTCHISON J.G., GORDON S.C., RUSTGI V.K., SHIFFMAN M., EINDOLLAR R., GOODMAN Z.D., KOURY K., LING M.-H., ALBRECHT J.K., INTERNATIONAL HEPATITIS INTERNATIONAL THERAPY GROUP. Peginterferon alfa-2b plus ribavirin compared with interferon alfa-2b plus ribavirin for initial treatment of chronic hepatitis C : a randomized trial. *Lancet*, 2001, **358** : 958-965.