Hepatitis C Infection Among Injecting Drug Users Attending the National Drug Treatment Centre

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Abstract

During a one year period from August 1992 to August 1993, 272 injecting drug users attending the National Drug Treatment Centre were tested for antibody to Hepatitis C Virus with a second generation EIA test. The overall ser-prevalence was 84% (N=229).

A significantly greater proportion of females tested positive than males (Female: Male, 94% v 80%, $p < 0.012$). Looking at sero-prevalence of Hepatitis C in relation to duration of intravenous drug misuse, we found that in those patients with a duration of misuse of greater than two years drug misuse, we found that in those patients with a duration of intravenous drug misuse of less than two years (N=116) the sero-prevalence was 70%.

We conclude that needle sharing continues to occur among injecting drug users during their first two years of injecting, despite the existence of harm minimization programmes. Our results would suggest that female injecting drug users are involved in greater at risk behaviour in relation to Hepatitis C than their male counterparts.

Introduction

Infection with Hepatitis C Virus is common among injecting dug users. Reported sero-prevalences of antibody to Hepatitis C Virus among injecting drug users include 56% in a German study[1] and 74% in a Dutch study[2]. The parenteral route is a very effective mode of transmission of Hepatitis C. Consequently injecting drug users, (due to needle sharing), and haemophiliacs comprise the two groups who are most at risk. Recent research has supported earlier suspicions that sexual and intrafamilial spread are poor modes of transmission[3,4].

With the advent of Human Immunodeficiency Virus (HIV) in the early 1980's much effort has been put into establishing harm minimization programmes for at risk groups. There has been an intensive drive to educate injecting drug users regarding sterile injecting techniques and needle exchanges have been provided. These approaches have been used in Dublin also, needle exchanges having been established in the late 1980's. These programmes may also reduce new cases of infection by viruses with a similar mode of transmission to HIV, including Hepatitis C Virus.

In Ireland the only previous study reporting sero-prevalence of antibody to Hepatitis C Virus was carried out in the West of Ireland among patients with liver disorders. This reported a rate of 10.3% mainly associated with blood transfusions[5].

Our aim was to quantify the sero-prevalence of antibody to Hepatitis C Virus among injecting drug users attending our Centre and to ascertain whether the harm minimization programme has made an impact on HCV infection.

Patients and Methods

All patients, both new attenders and re-attenders, who presented at the National Drug Treatment Centre, during a one year period between 15 August 1992 and 15 August 1993, giving a history of injecting drug use, were encouraged to consent to serological testing. Based on history given by patients, the duration of intravenous misuse was recorded as the time elapsed, in years and months since the patient first injected. Data regarding presence of a second risk factor was not obtained. The risk associated with blood transfusion in a young cohort or tattooing is very low compared to that associated with drug injecting [6,7]. The test used was the second generation enzyme linked immunosorbant assay (EIA) for antibody to Hepatitis C virus, produced by Ortho. For each specimen which tested positive another second generation EIA test for antibody to Hepatitis C was carried out and in all cases this was also positive. The sensitivity of second generation EIA tests is high (98%-100%) There is though a lack of specificity with a risk of false positivity. This is a problem with a low risk group such as blood donors rather than a high risk group such as intravenous drug misusers [8]. The biggest limitation of the EIA test for antibody to Hepatitis C Virus is the delay in the appearance of antibody after primary infection. This delay may be up to six months [9]. Consequently we choose to exclude all patients whose duration of intravenous misuse was less then six months. Fifteen patients were excluded on this basis. Patients were then assigned to one of two groups:

Group one if their duration of intravenous drug misuse was between six months and two years inclusive, and group two if the duration of intravenous drug misuse exceeded two years. The principal reason for choosing two years as the cut off point was that we wished group one to consist only of patients with short duration of intravenous drug misuse whose injecting commenced after harm minimization programmes were established in Dublin.

A total of 272 patients (194 male) were included in the study. The mean age of the total study group was 24.5 years and their mean duration of intravenous drug misuse was 4.5 years. Group one was made up of 116 patients (77 male, mean age 21.6 years, age range 17-34, modal age 20 years). The mean duration of intravenous drug misuse was 1.1 years. Group two was made up of 156 patients (117 male, mean aged 26.7 years, age range 18-43 years, modal age 24 years). The mean duration of intravenous drug misuse was 6.9 years.

Results

The sero-prevalence of antibody to Hepatitis C Virus among the total study population was 84% (95% Confidence Interval, 80%-88%) with 229 patients testing positive. The sero-prevalence among group one was 70% (95% Confidence Interval,

62%-78%) and among group two was 95% (95% Confidence Interval 92% -99%). See Table 1.

Looking at sex differences and sero-prevalence, 156 of the 194 males (80%) tested positive for antibody to Hepatitis C Virus and 73 of the 78 females (94%) were positive. This difference was statistically significant (Chi-squared = 6.302, df=1, $p<0.012$).

Discussion

The sero-prevalence for antibody to Hepatitis C among the total study population is higher than the figures from the German and Dutch studies. (However both of these studies used first generation EIA which were slightly less sensitive in detecting antibody to Hepatitis C Virus). The former study looked at a variety of risk groups but only involved 46 drug users. The latter study involved 304 injecting drug users and noted that duration of intravenous misuse, as well as frequency of injecting were associated with increase risk of infection. As 50% of those who become infected with HCV go on to develop chronic hepatitis it is felt that this may create a significant burden on general medical services in the future [(10)].

We noted with interest the difference in sero-prevalence rates for antibody to Hepatitis C between male and female intravenous drug misusers in this study. We have previously reported this[(11)] and feel that it indicates more at risk behaviour among female injecting drug users, many of whom are in relationships with male injecting drug users and consequently share injecting equipment with their partners. Our results do indeed show a lower sero-prevalence of antibody to Hepatitis C Virus among injecting drug users with injecting histories of less than two years. However the

Table 1
Comparing sero-prevalence of anti-HCV between two groups of IVDU with varying durations of intravenous misuse (DIM)

	Anti HCV + ve		Anti HCV -ve	
	No.	**%**	**No.**	**%**
Group 1 (Mean DIM 1.1 years) n = 116	81	70%	35	30%
Group 2 (Mean DIM 6.9 years) n = 156	148	95%	8	5%

figure of 70% among injecting drug users with a mean duration of intravenous drug misuse of only 1.1 years is a cause for concern. It could be argued that this figure will rise as their mean duration of misuse approaches that of group two. Our data indicates that Hepatitis C Virus is spread very readily by needle sharing and that needle sharing remains prevalent among injecting drug users with short histories. Previous researchers have noted that uptake from needle exchanges tends to be poor among younger injecting drug users with shorter histories[(12,13)]. Given these facts we feel that

future harm minimization strategies should focus more directly on those injecting drug users with a shorter history of injecting and also female injecting drug users.

Now that donated blood can be screened for antibody to Hepatitis C Virus one can expect that the incidence of post transfusion hepatitis C will decrease and that in future haemophiliacs will be at reduced risk[6]. However if injecting drug users continue to indulge in at risk behaviour the incidence of Hepatitis C Virus among intravenous drug misusers will remain high.

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