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KNOWLEDGE REGARDING HEPATITIS C AMONG INJECTING DRUG USERS.

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Abstract Hepatitis C (HCV) is very prevalent among injecting drug users (IDU). Control of this infection poses a major challenge to harm reduction services. Education of all IDU regarding HCV constitutes part of the harm reduction programme. We sought to assess understanding of HCV among IDU attending an addiction treatment clinic and to identify whether or not those with increased contact with health professionals demonstrated better understanding. 105 IDU were interviewed to assess their knowledge regarding modes of transmission and chronicity of HCV infection. They had first injected an average of 10.0 years previously. Interviewees were more successful at identifying activities which carried a risk of HCV transmission than they were at identifying activities which posed no risk of infection. Over one third falsely believed that one could contract HCV infection even when injecting 'safely'. Understanding of the long term nature of HCV infection was also impaired. A group on methadone maintenance for a median period of 1.4 years failed to demonstrate significantly better knowledge than those attending for a 21-day detoxification. Those in frequent contact with a GP performed less well than those without such contact. Understanding of HCV among IDU is inadequate and must improve if primary prevention efforts are to succeed. We question the value of didactic approaches to educating IDU and call for a more experiential teaching style which may be more successful at countering prevalent misconceptions.

Smyth BP, McMahon J, O'Connor JJ and Ryan (1999) Knowledge regarding Hepatitis C among injecting drug users, *Drugs: Education, Prevention and Policy*, 6(2), 257- 264

Introduction

World-wide, infection with hepatitis C (HCV) is common among injecting drug users (IDU) (MacDonald et al, 1996; Wodak & Crofts, 1996; Thomas et al, 1995). Although UK IDU have demonstrated a reduction in risk behaviour (Griffin et al, 1993; Stimson & Hunter, 1996), the prevalence of this infection remains high in injectors who commenced injecting in the current era of harm reduction (Smyth et al, 1995). Some commentators have become quite sceptical about the prospect of reducing rates of HCV among IDU (Wodak & Crofts, 1996). Internationally, harm reduction efforts include the provision of sterile injecting equipment and treatment with methadone. Education regarding safe injecting and, the dangers of unsafe injecting such as HIV and HCV, is another crucial component and occurs in treatment settings and through community outreach. All of these approaches are currently in existence in Dublin. At this point in time there has been no public health awareness campaign targeting hepatitis C. Therefore, IDU in Dublin are likely to have acquired information about hepatitis C from one of two main sources; health professionals and via peers (Wolitski et al, 1996; Barendregt & Trautmann, 1996). Health professionals include general practitioners and staff working in specialist addiction treatment centres. The effectiveness of health professionals attempts to educate IDU regarding HCV has not previously been assessed. If inadequate, it may account in part for the ongoing high incidence of HCV.

HCV is thought to be spread very readily via sharing needles and syringes. Sexual transmission and vertical transmission can also occur, although the level of risk associated with each of these circumstances is less. Now that blood products are screened for HCV, the risk of infection via blood transfusion is very much reduced, but is not zero. Up to 90% of infected persons are thought to carry the virus indefinitely. (Cramp, 1997; Gully, 1997)

Two Australian studies have found knowledge of hepatitis C to be lacking among certain out of treatment risk groups (prison inmates and high risk drug users), although the populations studied were not confined to IDU (Carruthers & Loxley, 1995; Butler et al , 1997). We sought to measure IDUs' level of knowledge regarding HCV in the setting of an addiction treatment clinic and to identify factors influencing this knowledge. We anticipated that those with increased contact with medical services would demonstrate better understanding, i.e. a 'dose-response' type effect. Also, for those of unknown HCV status, we wished to assess their current perceived level of risk of HCV infection.

Patients and Methods

All patients had a history of injecting drug use and a diagnosis of opiate dependence. A researcher (JM), who was independent of treatment services, interviewed patients over a five week period in August-September 1997. The patient groups eligible for inclusion were (i) those who commenced a 21-day methadone detoxification during the study period and (ii) those attending the clinic daily or on alternate days for methadone maintenance at the outset of the study. Patients were asked to consent to a confidential, structured interview lasting 30 minutes approximately. Due to time constraints, the researcher could not meet all 139 eligible patients and consequently 30 (22%) were not asked to participate. Four of those who were asked to consent to interview refused. The overall participation rate was 75.5%. Those not interviewed did not significantly differ in terms of sex ratio or age. Data was collected on socio-demographics, drug use history, current treatment and contact with general practitioner.

As no standardised instrument exists for assessing patients' knowledge regarding HCV, we developed our own series of questions. A scoring system was also agreed among the research

team after consultation with experts in the area of HCV. We chose to focus on two aspects of HCV. These were (i) routes of transmission and (ii) chronicity of infection. Regarding routes of infection, interviewees were initially asked to identify all routes of transmission which they believed could lead to HCV infection without prompting. They were then presented with a list of seven possible modes of spread of hepatitis C and asked to identify those which they thought were true, false or about which they were unsure. In order to calculate an overall 'knowledge score' for each interviewee, the following, scoring system was employed. Correct responses were scored 'plus one', incorrect responses scored 'minus one' and 'don't knows' scored zero. We believed it to be appropriate to use a 'negative marking system' as a false belief was considered more hazardous, in terms of the individual contracting and spreading HCV infection, than an acknowledgement of being unsure regarding a given mode of possible transmission. The two questions on chronicity of infection followed a multiple choice format, interviewees being presented with a list of possible answers. Correct responses to each scored two points, nearly correct responses scored one point and incorrect responses and 'don't knows' scored zero. The maximum possible 'knowledge score' was eleven. For all questions, interviewees were asked not to guess. Medical terms such as 'vertical' were not used during questioning with simple lay terminology being substituted.

Results

Seventy-three (70%) of the 105 patients were male. The median age of the group was 29 years (range 16 to 48 years). The median period since first injecting was 8 years (range 0.2 to 30 years). Forty-three patients (41%) were on the detoxification programme and 62 (59%) were on maintenance. Those on maintenance had been attending for a median period of 1.4 years

(range 0.1 to 20 years). Overall 84 (80%) reported previously having had a test for hepatitis C, and 75(89%) of these indicated that the result was positive.

In all, 77 (73%) indicated that they were registered with a GP. Of this group, seventy (91%) reported that their GP was aware of their drug use and 47 (61%) had seen their GP six or more times over the preceding twelve months.

All participants had heard of hepatitis C. Table 1 indicates that the vast majority (90%) spontaneously identified sharing injecting equipment as being a risk activity for transmission of Hepatitis C. Sexual intercourse and receiving a blood transfusion were the next two most frequently reported potential modes of transmission.

Table 1. The proportion of interviewees reporting various methods of transmission of Hepatitis C in response to an open-ended question, without prompting.

	Total (n = 105)		Males (n = 73)		Females (n = 32)		Significance test[1]
	Number	(%)	Number	(%)	Number	(%)	p
Sharing Injecting Equipment	95	(90)	67	(92)	28	(88)	0.49
Sexual Intercourse	49	(47)	35	(48)	14	(44)	0.69
Receiving a Blood Transfusion	20	(19)	15	(20)	5	(16)	0.55
Injecting without ever sharing injecting equipment	8	(8)	7	(10)	1	(3)	0.43
Household Spread (Toothbrushes, etc)	8	(8)	7	(10)	1	(3)	0.43
Kissing	1	(1)	1	(1)	0	(0)	1.0
Vertical	0	(0)	0	(0)	0	(0)	1.0

[1] Chi squared test was used except where the minimum expected cell count was less than 5, in which case Fisher's exact test statistic was calculated.

Table 2 indicates responses when interviewees were asked directly about specific activities. In all, 77(73%) recognised all four of the risk activities (i.e. sharing injecting equipment, sex, transfusion and vertical). The proportions responding correctly dropped when asked about activities with no recognised risk with only 46(44%) recognising all three 'safe' activities (i.e. injecting without sharing, smoking heroin and kissing). On the issue of chronicity of infection, only 46(44%) answered both questions correctly.

Table 2 Beliefs held by interviewees regarding specific potential modes of transmission of Hepatitis C and responses to questions on chronicity of infection.

	Correctly responding		Incorrectly responding		Unsure	
	Number	(%)	Number	(%)	Number	(%)
Identification of activities that pose some level of risk						
Sharing Injecting Equipment	104	(99)	0	(0)	1	(1)
Sexual Intercourse	96	(91)	4	(4)	5	(5)
Receiving a Blood Transfusion in the past	96	(91)	4	(4)	5	(5)
Vertical	90	(86)	7	(7)	8	(7)
All four identified as posing some level of risk	77	(73)				
Identification of activities that pose no recognised risk						
Injecting without ever sharing injecting equipment	59	(56)	39	(37)	7	(7)
Only ever smoking heroin	84	(80)	16	(15)	5	(5)
Kissing	87	(83)	11	(10)	7	(7)
All three identified as posing no risk	46	(44)				
"How long does hepatitis C usually stay in the body when infected?"						
Days to months			2	(2)		
Many Years	6	(6)				
Lifetime	74	(70)				
Don't Know					23	(22)
"How many people with hepatitis C will have infection for years?"						
10% or less			10	(9)		
About 1 in 3	1	(1)				
More than half (more than 50%)	51	(49)				
Don't know					43	(41)
Both questions on 'chronicity' answered correctly	46	(44)				

Over one third incorrectly believed that one could contract HCV while injecting safely, i.e. when no sharing of any injecting equipment or associated paraphernalia occurred (table 2). Those who believed this were subsequently questioned about how this might occur to ensure that they were not misunderstanding the question. Theories about this mode of transmission varied but included; "if your own blood is exposed to the air when you draw back, you can get it", "its on your skin and once you push the needle through, you get it" or "it can just be in the gear [heroin]".

Regarding the overall ‘knowledge score’, these ranged from minus 1 to 11 (mean 7.60, median 8). Only 18(17%) of interviewees responded correctly to all questions. Table 3 shows the relationship between the mean ‘knowledge score’ and various independent variables. Older age and longer history of injecting were each associated with significantly better scores ($p<0.01$). (It must be noted that the groupings for age and duration injecting are very significantly associated, those of older age tending also to have longer injecting histories [chi squared =33.9, $p<0.001$]). Those in frequent contact with a GP did significantly worse than those without such contact ($p=0.02$). Neither younger interviewees nor those with shorter injecting histories were over-represented in the group with frequent GP contact (data not shown, chi squared test, $p=0.73$ and 0.74 respectively). Gender, remaining longer in education, employment status, having previously been tested for HCV and being on the maintenance programme were not significantly associated with better scores.

Table 3 Mean 'Knowledge scores' attained by interviewees regarding hepatitis C and their association with socio-demographic, drug use and treatment characteristics.

	Number	Mean 'Knowledge score'	Standard Deviation	Student's t statistic[1]	Degrees of freedom	P value
Total Group	105	7.60	2.61			
Gender						
Male	73	7.64	2.45			
Female	32	7.50	2.99	0.259	103	0.80
Age (years)[2]						
Less than 30	54	6.89	2.72			
30 and over	51	8.35	2.28	-2.978	103	0.004
School leaving age (years)[2]						
Less than 15	52	7.98	2.24			
15 and over	53	7.23	2.90	1.489	103	0.14
Employment status[3]						
Employed	15	7.67	2.47			
Unemployed	89	7.62	2.65	0.066	102	0.95
Duration injecting(years)[2]						
Less than 8	47	6.70	2.61			
8 and over	58	8.33	2.39	-3.321	103	0.001
Hepatitis C testing						
Previously tested	84	7.80	2.73			
Never tested	21	6.81	1.91	1.562	103	0.12
Treatment Programme						
Maintenance	62	7.84	2.56			
Detoxification	43	7.26	2.67	1.126	103	0.26
Frequent Attender of GP[4]						
Yes	45	6.93	2.85			
No	60	8.10	2.32	-2.312	103	0.02

[1] Independent samples T-test performed. Levene's test for equality of variances supported validity of use of T-test in each case

[2] For the purposes of data presentation and statistical analysis, quantitative variables were categorised according to their median value.

[3] One interviewee was still attending school.

[4] Attending a GP more than 5 times in the preceding 12 months considered 'frequent'.

Of the 21 never previously tested for HCV, only five thought it likely or very likely that they were currently infected.

Discussion

This study has some limitations. Firstly, only 75.5% of the available study population were interviewed due to time constraints imposed on the number of weeks during which the interviewer could attend the clinic. However, we believe that it is unlikely that any sampling bias was inherent in this process. The study population is modest in size and hence limited the power to detect possible independent variable which exert a minor effect on knowledge enhancement. Also in this study population, the mean age is greater and mean length of injecting history longer than the corresponding figures from the national statistics on attendances for treatment of drug misuse (Moran et al, 1997.). This suggests that the level of knowledge demonstrated in this study is greater than one would expect of the typical IDU attending for treatment in Dublin. Also, we did not attempt to assess understanding of the various degrees of risk associated with activities, sharing of injecting equipment obviously carrying with it a much greater level of risk than sexual intercourse, for example. The use of face to face interviews, which were conducted by a member of the research team with clinical training, ensured that misunderstanding of questions by interviewees was kept to a minimum.

Encouraging findings included the fact that all had heard of HCV and knowledge of the risk activities which may lead to its transmission were satisfactory. This was not the case in the two Australian populations previously studied and may indicate the beneficial impact of contact with treatment services. However, greater confusion was demonstrated when it came to identifying those activities which posed no risk of HCV. We are concerned at the finding that substantial minorities believe that there is risk of exposure even when not sharing any injecting paraphernalia and when only smoking heroin. Perceived personal vulnerability to infections such as HCV is likely to be a factor in leading individuals to avoid practising unsafe injecting

(Caruthers, 1995). If this vulnerability is diminished by a false belief that one may already have been exposed to HCV when injecting safely or when smoking, the preparedness to share injecting equipment may well increase. Hence such misconceptions may facilitate spread of HCV and HIV. IDUs' underestimation of their level of risk of exposure to HCV was demonstrated and this is a frequent finding in studies of this nature (Caruthers, 1995).

Those participants who were on the maintenance program had been attending for a median period of over 500 days. The maximum attendance period for those on the detoxification programme prior to interview was 25 days, but was much less in most cases (exact period of attendance not recorded for the detoxification group). The fact that those on the maintenance program did not know significantly more about HCV suggests that prolonged and ongoing contact with a treatment centre is not significantly better in terms of knowledge acquisition than a brief contact. The finding that those in regular contact with a GP performed less well than those without such contact was surprising. We were unable to identify any confounding variable which could explain this observation. Overall, we found no evidence that health professional contact and knowledge acquisition demonstrated a positive 'dose-response effect'.

Conclusion

In this highly treated population of IDU, many still demonstrated prominent misconceptions about the ease of transmission and natural history of HCV infection. Simply increasing contact with services has not been shown here to lead to any significant gain in understanding. Hence one must conclude that current education approaches in specialist treatment centres and by GPs have deficits. There may be an inadequate understanding of HCV among drug service workers and this could be usefully examined in further studies. Alternatively, rather than a lack of

knowledge, there may be inadequacies in the way in which information is provided to IDU. Stiernborg (1996) evaluated HIV educational approaches and demonstrated that a didactic teaching style is less effective than an experiential style. It may well be the case that as health professionals, we are more inclined to give facts to patients about what we know to be the risk activities, rather than explore with them what they perceive as risk behaviour. When adopting the latter approach, their misconceptions are more likely to emerge and thereby provide the clinician with the opportunity to correct and educate. This approach is amenable to group work (Stiernborg et al, 1996). If misconceptions are not corrected on contact with health professionals, then the potentially useful peer network will only serve to perpetuate misinformation (Barendregt & Trautmann, 1996).

We accept that even if all IDU were fully informed, injecting risk behaviour would not cease. However, we firmly believe that extensive syringe exchange programmes, without co-existing focused education approaches, will fall far short of their potential impact (Strathdee et al, 1997; Smith, 1987). There is a need for thoughtful education initiatives, which take into account the various myths and misconceptions which are prevalent in each given area world-wide. This means moving away from the typical didactic model of fact provision.

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