Gauging acceptance of a hepatitis C test by family planning clinic attendees in Glasgow, UK

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Abstract

Background In the UK, pregnant women are not offered and recommended a hepatitis C virus (HCV) test because no effective intervention to prevent vertical transmission of HCV exists following conception. Mother-to-child transmission of HCV could, however, be reduced if infected women planning to have children underwent a course of therapy prior to conception.

Objective To determine what proportion of female family planning clinic (FPC) attendees would hypothetically accept an HCV test if they were offered it and to identify the factors associated with such a decision.

Methods Opportunistic sampling was used to recruit 1000 women attending FPCs in Glasgow during 2002/2003. Participants were asked to self-complete a brief questionnaire about HCV and testing.

Results Of 964 participants, 62% reported that they would accept an HCV test if it was offered in the family planning setting and 24% indicated that they were undecided. Only 4% of women reported that they would be offended if offered an HCV test. The highest rates of hypothetical acceptance of an HCV test were reported among those who had ever injected drugs (88%) and those who felt that they were at risk of being infected with HCV (84%). Women who were single [adjusted odds ratio (OR) 1.4, 95% CI 1.1–1.8] and who were of non-white ethnic origin (adjusted OR 2.5, 95% CI 1.0–6.2) were also significantly more inclined to hypothetically accept an HCV test.

Conclusion Selective HCV testing to those women at high risk of HCV infection should be encouraged in the family planning setting.

Keywords family planning, HCV, hepatitis C, pre-pregnant, testing

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Introduction

In Scotland, 19 422 persons had been diagnosed with the hepatitis C virus (HCV) by the end of June 2005.[1] An estimated 60–70% of the total Scottish HCV-infected population, however, remain undiagnosed.[2,3] The great majority (an estimated 80–90%) of those infected in Scotland are current or former injecting drug users.[4] Approximately one-third of those with diagnosed, and likely undiagnosed, HCV are women, mostly of childbearing age, who have a 5–10% chance of transmitting infection to their babies during pregnancy or at the time of birth.[5,6] A nationwide survey of childbearing women in Scotland during 2000[2] reported that: (i) the prevalence of HCV in this group was low (0.3–0.4%) but highest in Greater Glasgow (0.8–1.0%) and other areas of high IDU prevalence, (ii) only 24% of HCV-infected women were diagnosed with HCV prior to pregnancy and (iii) approximately 10 HCV-infected babies are estimated to be born in Scotland each year.

Ribavirin and pegylated interferon combination therapy leads to a sustained clearance of HCV from the bloodstream in around 50–60% of treated individuals,[7] with successful treatment expected to prevent the development of serious liver disease complications.

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Key message points

- **Mother-to-child transmission of hepatitis C virus (HCV) could be reduced if infected women underwent a course of therapy prior to conception.**
- **The majority of women who had ever injected drugs or who reported feeling at risk of HCV indicated that they would hypothetically accept a test in the family planning setting.**
- **Selective HCV testing of those women at high risk of HCV infection should be encouraged in the family planning setting.**

Ribavirin, due to its potential teratogenicity, however, is contraindicated for use during and within 6 months of pregnancy; furthermore, there is some but no compelling evidence to indicate that elective Caesarean section prevents mother-to-child transmission.[6,8] Therefore, pregnant women are not offered and recommended an HCV test because no effective intervention to reduce the probability of vertical transmission of HCV exists following conception.[9–12] Mother-to-child transmission of HCV could, however, be reduced if infected women planning to have children underwent a course of therapy prior to conception. Before such women can choose whether or not to receive antiviral therapy they must know their HCV antibody status. Thus, the family planning clinic (FPC) setting may be considered an appropriate place for HCV diagnostic testing;[13] those testing positive could be referred to a specialist centre for treatment. Accordingly, the authors sought to determine what proportion of female attendees of Glasgow's principal and community FPCs would hypothetically accept an HCV test if they were offered it and to identify the factors associated with such a decision.

Methods

Study design

Opportunistic sampling was used to recruit 1000 women aged 14–55 years attending a FPC in Glasgow (500 from

The Sandyford Initiative principal clinic and 500 from nine of the peripheral clinics) over an 11-week period during 2002/2003. In the waiting area of clinics, participants were asked, by a member of the research team (LS), to complete a brief questionnaire (details below). During the clinics at which LS was present (an average of 15 hours per week) every female clinic attendee was invited to participate. Along with the questionnaire, participants were given an information sheet, which outlined the aims of the study and provided information about where counselling and testing for hepatitis C could be sought. Refusal to participate in the survey was low (4%). The survey was anonymous and written consent was not requested; examination of the limited identifying information (i.e. year of birth, forename and surname initials and first part of postcode) collected from questionnaires established that there were no repeat respondents.

Setting and participants

The Sandyford Initiative is a holistic, integrated, sexual health facility that provides reproductive and genitourinary medicine (GUM) services, for the population of Glasgow, within one central and 28 community clinic settings.[14] Between April 2002 and March 2003, the FPCs within The Sandyford Initiative managed 37 074 and 31 326 attendees at the principal and community clinics, respectively.

Study questionnaire

The self-complete questionnaire first asked about demographic information: age, marital status, occupation, qualifications, ethnic origin, sexual orientation, previous pregnancies, and reason for attending the FPC. Participants were then provided with some information about HCV on (i) transmission routes (including mother-to-child), (ii) the blood test to detect infection, (iii) the treatment to reduce the risk of long-term problems related to HCV and (iv) the potential benefit of testing and treating women for HCV prior to pregnancy to reduce the risk of transmitting the infection to their baby. Then, some questions were asked about HCV: their perceived risk of infection, their risk factors for acquiring infection and their willingness to be tested for the virus at the FPC.

Analysis

Unifactorial and multifactorial logistic regression analyses were performed to establish the factors associated with hypothetical acceptance of an HCV test in the FPC setting; this analysis involved comparing the characteristics and perceptions of those individuals who reported that they were hypothetically willing to accept an HCV test compared to those who were either not willing or undecided. Thirty-four participants failed to complete the last section of the questionnaire on 'Attitudes towards hepatitis C and testing' and a further two participants reported that they were hepatitis C-positive; these participants were excluded from the analysis. Backward stepwise regression methods were used to determine the subset of variables that were significantly related to the outcome at the 10% level.

Ethical approval

The Greater Glasgow NHS Primary Care Trust Ethics Committee approved the study.

Results

Participants' characteristics

The characteristics of the sample in terms of age, marital status, ethnicity, educational background and employment status are presented in Table 1. The majority of participants (880/964, 91%) reported that they were heterosexual; eight (1%) reported being lesbian or bisexual, eight (1%) placed themselves in the 'other' category but offered no definition and 68 (7%) did not respond. Reasons for attending the FPC included contraception (675/949, 71%), pregnancy test (122/949, 13%), emergency contraception (53/949, 6%), physical symptoms (44/949, 5%), smear test or laboratory results (38/949, 4%), concern about a sexual infection (36/949, 4%), emotional issues (17/949, 2%) and supporting a friend or relative (6/949, 1%).

Hypothetical acceptance of an HCV test

Of the 964 participants, 62% reported that they would accept an HCV test if it was offered in the FPC setting and 24% indicated that they were undecided. Thus, the proportion of these women who would actually accept an HCV test could be between 62% and 86%. The highest rates of hypothetical acceptance of an HCV test were reported among those women who had ever injected drugs (7/8 participants) and those who felt that they were at risk of being infected with HCV (84% acceptance by 64 participants). A small proportion (4%) of women reported that they would be offended if offered an HCV test at the FPC.

The majority of women who stated that they would accept a test specified 'Peace of mind' as the main reason for their decision (467/590, 79%). Other reasons included 'To ensure I am not putting anyone else at risk' (80/590, 14%), 'I feel I could be at risk' (18/590, 3%) and 'To prevent me passing it to my unborn child' (16/590, 3%); however, of the respondents with these reasons, only 8/80 (10%), 10/18 (56%) and 2/16 (13%), respectively, replied on a separate question that they felt at risk of being infected with HCV. The main reason for individuals indicating they would not accept a test was 'I am not at risk' (101/127, 80%); other reasons included 'I would want to think further about the implications of the results before I was tested' (11/127, 9%), 'I already know my hepatitis C status' (9/127, 7%) and 'I would prefer to be tested in a different clinical setting' (2/127, 2%).

Determinants of hypothetical acceptance of an HCV test

In multifactorial regression, women who felt at risk of being infected with HCV [adjusted odds ratio (OR) 3.3, 95% CI 1.6–6.5, $p = 0.001$], who reported that they were single (adjusted OR 1.4, 95% CI 1.1–1.8, $p = 0.02$) and who were of non-white ethnic origin (adjusted OR 2.5, 95% CI 1.0–6.2, $p = 0.06$), were significantly more inclined to hypothetically accept an HCV test.

Participants were considered as having high-risk behaviour if they had injected drugs (1%) or if their sexual partner had injected drugs (3%). Although only statistically significant at the 10% level in the multifactorial model, over three-quarters of these participants presenting with high-risk behaviour reported that they would hypothetically accept an HCV test compared to 62% of those not presenting with high-risk behaviour (adjusted OR 2.3, 95% CI 1.0–5.3, $p = 0.07$). In the unifactorial analyses, women who reported that they intend to have children in the future and those who were currently in education, compared to those in employment, were significantly more likely to hypothetically accept an HCV test; these associations were not retained following backward stepwise regression.

Discussion

These findings indicate that the FPC would be an acceptable setting to introduce a screening programme for HCV. Only 14% of female FPC attendees reported that they

Table 1 Factors associated with hypothetical acceptance of a hepatitis C virus test among family planning clinic attendees in Glasgow, UK

Determinant	Total *n* (%)	Hypothetical HCV test acceptance		
		n (% of total)	Odds ratio (95% CI)[b]	
			Unifactorial	Multifactorial
Study group	964 (100)	602 (62)		
Recruitment setting (0 NR)				
Principal clinic	497 (52)	313 (63)	1.00 (baseline)	NS
Peripheral clinic	465 (48)	287 (62)	0.95 (0.73–1.23)	
Age (years) (14 NR)				
<20	156 (16)	101 (65)	1.00 (baseline)	NS
20–24	268 (28)	175 (65)	1.02 (0.68–1.55)	
25–29	205 (22)	126 (62)	0.87 (0.56–1.34)	
30–34	131 (14)	80 (61)	0.85 (0.53–1.38)	
≥35	190 (20)	116 (61)	0.85 (0.55–1.32)	
Marital status (7 NR)				
Cohabiting/married	458 (48)	267 (58)	1.00 (baseline)	1.00 (baseline)
Single	499 (52)	334 (67)	**1.45 (1.11–1.88)**	**1.39 (1.06–1.82)**
Ethnicity (6 NR)				
White	929 (97)	574 (62)	1.00 (baseline)	1.00 (baseline)
Other	29 (3)	22 (76)	1.94 (0.84–4.48)	**2.45 (0.98–6.16)**
Highest qualification (36 NR)[a]				
School	463 (48)	288 (62)	1.00 (baseline)	NS
College	167 (17)	106 (64)	1.06 (0.73–1.52)	
University	245 (25)	153 (62)	1.01 (0.73–1.39)	
No qualification	53 (6)	33 (62)	1.00 (0.56–1.80)	
Employment status (5 NR)				
In education	231 (24)	156 (68)	**1.37 (1.00–1.89)**	NS
In employment	631 (66)	380 (60)	1.00 (baseline)	
Unemployed	97 (10)	62 (64)	1.17 (0.75–1.82)	
Intention to have children in the future (11 NR)				
Yes	547 (57)	358 (65)	**1.31 (0.97–1.77)**	NS
No	264 (28)	156 (59)	1.00 (baseline)	
Don't know	142 (15)	83 (59)	0.97 (0.64–1.47)	
Feel at risk of HCV (3 NR)				
Yes	64 (7)	54 (84)	**3.60 (1.82–7.13)**	**3.25 (1.62–6.49)**
No	807 (84)	484 (60)	1.00 (baseline)	1.00 (baseline)
Don't know	90 (9)	63 (70)	**1.56 (0.97–2.50)**	1.45 (0.89–2.35)
Report of high-risk behaviour (37 NR)[a]				
Participant injected	8 (1)	7 (88)	**2.01 (0.90–4.50)**	**2.25 (0.95–5.30)**
Partner injected	26 (3)	19 (73)		
Don't know	33 (3)	24 (73)	1.65 (0.76–3.60)	1.26 (0.56–2.83)
None of above	860 (89)	531 (62)	1.00 (baseline)	1.00 (baseline)

[a]For variables with more than 30 non-respondents, non-respondents were included as a separate category in the logistic regression model.
[b]Results in bold type are statistically significant at the 10% level. HCV, hepatitis C virus; NR, non-responses; NS, not significant.

would not accept an HCV test if offered one and 80% of these stated that they were not at risk as the main reason for not wanting a test. Only two women indicated that they would prefer to be tested for HCV in a different clinical setting. Few women (4%) also reported that they would be offended if offered a test in the family planning setting, although half of these still would have accepted a test.

Family planning was selected as a possible setting for HCV screening due to the added benefit of treating HCV-infected women prior to pregnancy in potentially preventing vertical transmission. However, because the proportion of women intending to have children in the future who indicated that they would accept a test in the FPC was not much greater than that among the rest of women surveyed, the hypothetical desire to be tested seemed to be driven as much by concerns relating to infection among the women themselves as those about transmitting HCV to their babies. While 62% of FPC attendees said they would accept an HCV test, only 7% felt they were at risk of being infected. A previous study found the prevalence of HCV to be significantly higher among pregnant women who were either injectors (41%) or sexual partners of injectors (15%) compared to those who reported neither risk (0.3%).[13] There was a low prevalence of these high-risk behaviours among the women surveyed in the FPCs in Glasgow: 1% and 3% reported either they or a sexual partner had injected drugs, respectively. Cost–utility studies have also shown that universal screening in low HCV prevalence populations (i.e. <3%), such as GUM clinic attendees, is not cost effective, while selective screening of injecting drug users in these settings is moderately cost effective (based on combination therapy with interferon alpha and ribavirin).[15,16] Thus, selective, rather than universal, screening in FPCs is likely to be the more cost-effective approach to identify and treat women with HCV and reduce the probability of vertical transmission. Selective HCV testing in the FPC setting could be combined with that for HIV but the benefit of testing for HIV at the pre-pregnancy stage is less compelling as, unlike for HCV, all pregnant women are

offered a test antenatally as the interventions for preventing mother-to-child transmission of HIV are highly effective.

HCV testing is recommended for individuals who have identifiable risk factors,[17–19] such as ever having injected drugs, but the extent to which screening is implemented in different settings varies considerably.[20] Targeting clients in sexually transmitted infection clinics for known risk factors has been shown to be an effective strategy to identify individuals with HCV.[21] To our knowledge, other than in France,[22] HCV screening has not been promoted in FPCs. If targeted screening were to be introduced in FPCs, this study suggests that the majority of individuals identified with high-risk behaviours would accept an HCV test. In addition to drug treatment services, prisons and GUM clinics, FPCs need to be highlighted as an important setting for selective HCV screening.

Statements on funding and competing interests

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Competing interests None identified.

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BOOK REVIEW

Harnessing Information for Health Economics Analysis. M James, E Stokes. Oxford, UK: Radcliffe Publishing, 2006. ISBN: 0-85775-985-0. Price: £21.95. Pages: 144 (paperback)

The practical style of this book is very much suited to applied health economists carrying out economic evaluations. The terminology in the book is deliberately uncomplicated – making this book ideal for researchers new to health economics. Appropriately titled, this book will be a valuable reference source for applied health economists as it contains a comprehensive, up-to-date catalogue of the key health economic information sources. The book is a very readable text for any reader interested in appropriate sources of data for health economic analyses or just wanting to understand the roles of the different organisations that provide health economic information.

The book can be thought of in three distinct sections. The first section comprises two chapters, namely an introduction and a brief summary of the techniques of economic appraisal. The second section contains four chapters outlining the various types of health economic data available in the UK, chapters on relevant secondary care data, primary care data and a chapter explaining the various organisations providing health economic information. The final section comprises three chapters on measuring benefits and preferences, resources and costs and a final chapter reflecting on the book and future issues. In my view the key novel contribution of this book, and certainly the most useful for applied health economists, is the second section containing the four chapters on UK data sources and organisations. Chapter 3 on 'UK National Data' is an extremely useful, practical chapter outlining the types of and sources of unit cost data required by applied health economists including up-to-date website addresses containing such data. The authors are very good at explaining the nuances between the different types of cost data available as well as the 'pros and cons' of using the different types of unit cost data available. Indeed, as a relatively experienced health economist I learned of some new, useful sources of cost data (including alternative sources of data for medical staff pay and the NHS Logistics Authority Catalogue documenting medical consumables used by hospitals).

The authors clearly state that the book is not a theoretical one but an applied one designed to equip its readers with the practical tools to both understand and apply health economic methods. Indeed, the chapters in section three of the book on measuring benefits and preferences and resources and costs provide very brief and somewhat unsystematic summaries. Any reader with a special interest in such subjects would certainly benefit from more specialised and systematic readings in these areas. However, the costing chapter provides some good practical examples of how to carry out micro-costing exercises in economic evaluation as well as nicely outlining relevant practical methodologies for collecting information from patients. In fact, on reading this chapter I would have welcomed, and enjoyed, reading further examples of this type – indeed the chapter could have benefited from some more tables/vignettes of such practical examples without losing the interest of the reader.

I would certainly recommend reading this chapter. I for one will be keeping this book handy on my desk as a key source of relevant health economics references and website addresses.

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