Screening for hepatitis C among injecting drug users and in genitourinary medicine clinics: systematic reviews of effectiveness, modelling study and national survey of current practice

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Executive summary

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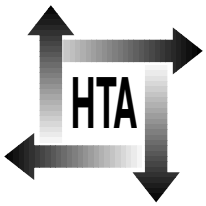

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Executive summary

Background

Screening for hepatitis C virus (HCV) infection is the offer of a test in people not complaining of symptoms associated with HCV or requesting a test of HCV status. Screening for HCV is currently undertaken in a range of groups and settings, and supported by several consensus statements internationally and NHS policy with respect to screening in injecting drug users (IDUs). Screening for HCV stands up reasonably well to the UK National Screening Committee criteria, but some important uncertainties remain.

The natural history of HCV is characterised by high rates of chronicity and, after a long but variable latent period, clinically important sequelae. Injecting drug use is the most important route for infection; sexual transmission appears to be less significant. Prevalence of HCV among IDUs is high. This is lower than in some community-based studies in the UK, but reflects the prevalence among those in contact with drug services. Genitourinary medicine (GUM) clinic attenders do not have a markedly higher prevalence of HCV than the general population and the majority of GUM clinic attenders with HCV have a history of injecting drug use.

People with HCV have reduced quality of life (even in mild disease and when adjusting for co-morbidities), which is, for example, similar or worse than patients with non-insulin-dependent diabetes mellitus. Antiviral treatment appears to improve quality of life.

Objectives

To review the clinical effectiveness and cost-effectiveness of screening for HCV in IDUs and GUM clinic attenders in the UK. Further objectives were to determine the extent of screening for HCV in England and whether knowledge of HCV status causes behavioural changes among infected or uninfected people that may reduce the spread of HCV.

Methods

Review of economic evaluations of screening programmes

Electronic databases were searched from 1996 to 2001 using a broad strategy to identify existing evaluations of screening programmes for HCV. Articles were appraised using a standard framework.

Study of current practice in HCV screening (diffusion study)

In October 2001, a questionnaire survey of all GUM clinics, health authorities and prisons, and 50% of drug services in England was conducted. Participants were asked about screening, diagnosis and treatment within their organisation.

Cost-effectiveness model

The model examined the progress of hypothetical cohorts through the stages of screening, diagnosis and treatment in two separate populations: IDUs in contact with drug services and GUM clinic attenders. Screening was compared to a no-screening scenario and cost–utility (£/quality-adjusted life-year (QALY)) was estimated. Literature searches were performed to identify values for the parameters included in the model. Costs were discounted at 6% and benefits at 1.5%. Extensive sensitivity analyses and some multi-way analyses were conducted.

Effect of knowledge on risk behaviour

Electronic databases were searched from 1981 to 2002 for studies on behavioural changes associated with gaining knowledge of HCV status. Further relevant studies were sought through citation searching, scrutiny of the references obtained and from experts.

Results

Review of economic evaluations of screening programmes

Six relevant studies of screening strategies (one cost–utility analysis, one cost–benefit analysis and four cost-effectiveness analyses) were revealed. Only one study addressed screening in the UK. All of the other studies were of limited scope

and/or relevance to the UK setting. The UK report estimated the cost–utility of screening as £10,177/QALY in IDUs and £27,125/QALY in GUM clinic attenders. Sensitivity analyses showed a range of possible cost–utilities: £12,580–194,026/QALY in GUM clinic attenders and £3333–81,438/QALY in IDUs. Significant methodological weaknesses were recognised by the authors.

Study of current practice in HCV screening (diffusion study)

The response rate was 65% overall, and 26% of drug services reported screening compared to 92% of GUM clinics. The survey revealed that a wide range of eligibility criteria for screening are used, with many organisations screening only those considered to be at increased risk of infection. A range of screening tests are reported, although enzyme-linked immunosorbant assay followed by polymerase chain reaction is the commonest combination. Organisations that conduct screening are often not closely associated with those that consider treatment, and this may mean that people are screened who would not be considered for treatment. Alternative reasons for screening under these circumstances are unknown. Health authorities may not be fully aware of the extent of screening locally, which may suggest a lack of strategic overview of screening and that the implications of initiating screening may not have been considered across healthcare communities. Treatment for HCV is widely, although not universally, available. Use of pegylated interferon in combination therapy appears at the time of writing limited.

Cost-effectiveness model

Screening for HCV in IDUs was estimated to yield benefits over no screening at a cost of £28,120/QALY. This estimate was reasonably stable in a wide range of one-way sensitivity analyses. Lower cost-effectiveness may be associated with low acceptance of liver biopsy and/or acceptance of treatment with combination therapy. Pegylated interferon (although not exhaustively reviewed) may substantially increase the cost-effectiveness of screening. The cost-effectiveness of universal screening in GUM clinics was estimated to be £84,570/QALY and was subject to considerable uncertainty. Selective screening in GUM clinics is likely to be more cost-effective than universal screening. However, only under assumptions of high acceptance of screening and/or adherence to treatment do selective screening strategies in GUM clinics achieve levels of cost-effectiveness that might be considered to represent good value for money, in the absence of other considerations, by policy makers.

Effect of knowledge on risk behaviour

Four relevant studies were identified (three cross-sectional and one longitudinal) and all had considerable methodological limitations. There was no compelling evidence to support the idea that behavioural changes would occur as a result of learning HCV status, either among those shown to be HCV positive (who may be encouraged to reduce the risk of infecting others) or those shown to be HCV negative (who might consider protecting themselves from infection), although the evidence base was insufficient to reject the possibility that such effects exist.

Conclusions

The objectives of screening for HCV should be clarified. Policy makers might wish to elucidate whether the primary purpose of screening is to: identify infected individuals for treatment, enable monitoring of infected individuals regardless of eligibility for treatment, achieve harm reduction in relation to the progression of HCV disease through reducing alcohol consumption or influence behaviour in relation to the spread of HCV. Evidence in support of objectives other than the treatment of infected individuals appears to be limited.

Screening for HCV in IDUs in contact with services is moderately cost-effective (about £30,000/QALY) and reasonably stable when explored in extensive one-way sensitivity analyses. Uncertainty around acceptability of screening and adherence to treatment and the simple nature of our model leads us to recommend caution in accepting this estimate.

Universal screening in GUM clinics is less cost-effective and subject to greater uncertainty than screening IDUs in contact with services. Assessment of selective screening policies in the GUM clinic setting is restrained by scarcity of information on the epidemiology of HCV in groups other than IDUs. While selective screening may be more cost-effective and affordable than universal screening, we believe that it remains open to question whether seeking people other than IDUs for screening represents a cost-effective use of NHS resources.

Research recommendations

Further research in the following areas would be valuable.

- The epidemiology and long-term natural history of HCV in different populations, particularly those presenting to GUM clinics.

- A systematic review of the role of sexual transmission of HCV.
- Improved modelling for the cost-effectiveness of screening based on more sophisticated methods, for example, discrete event simulation to introduce a more stochastic approach, extending the analysis beyond the prevalent round of screening and incorporating more realistic modelling of the no-screening alternative.
- Further empirical investigation into screening in different settings, including more detailed investigation of screening in GUM clinics, in particular to provide more data on acceptance and adherence within screening programmes and reasons for selection of eligibility criteria for screening.
- Development and evaluation of interventions to produce behavioural changes among IDUs in relation to HCV infection. Studies should be longitudinal, specify the intervention more clearly and measure behaviour changes more precisely and with greater power to demonstrate effects. This should include an evaluation of the information currently given to participants in screening programmes.
- Research to consider whether there are differences in effect according to specific characteristics of the population and setting for intervention, such as duration of injecting, presence of co-infection or morbidity, sex or setting in which screening is conducted.
- Monitoring of treatment response and long-term follow-up of people identified through screening.

Publication

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NHS R&D HTA Programme

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The research reported in this monograph was commissioned by the HTA Programme to inform discussions by the Diagnostic Technologies & Screening Panel. Technology assessment reports are completed in a limited time. This review brings together evidence on key aspects of the use of the technology concerned.

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The views expressed in this publication are those of the authors and not necessarily those of the HTA Programme or the Department of Health. The editors wish to emphasise that funding and publication of this research by the NHS should not be taken as implicit support for any recommendations made by the authors.

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