Behavioural interventions for preventing hepatitis C infection in people who inject drugs: a global systematic review

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CRD summary
This review concluded that behavioural interventions did not significantly reduce hepatitis C virus transmission in people who inject illicit drugs. Compared to control, peer education interventions significantly reduced injecting-related risk behaviours whereas counselling did not. In view of the limited evidence and apparent reporting errors in the review, the authors' conclusions should be treated with caution.

Authors' objectives
To evaluate the effects of behavioural interventions in reducing injecting-related risk behaviours and hepatitis C virus transmission in people who inject illicit drugs.

Searching
MEDLINE, EMBASE, Cochrane Central Register of Controlled Trials (CENTRAL), Cochrane Database of Systematic Reviews, DARE and PsycINFO were searched. Search dates ranged from 1806 to 2010. Search terms were reported. Bibliographies of relevant reviews were handsearched.

Study selection
Eligible for inclusion were controlled studies of behavioural interventions directed at reducing injecting-related risk behaviours and hepatitis C virus transmission and included some people who had injected illicit drugs. Studies could be conducted in any country. Eligible interventions were defined as non-pharmacological, targeted individual drug users and did not explicitly aim to change population norms. Outcomes had to be presented separately for drug injectors. Control groups had to receive an intervention that was shorter or less intensive, one which was not aimed at reducing injecting drug use or injecting-related risk behaviour or no intervention. Studies had to measure one or more of the outcomes: hepatitis C incidence (the primary outcome); change in frequency of injecting drug use; or change in frequency of needle sharing or sharing of other injecting equipment. Observational studies were excluded.

Studies were conducted in the United Kingdom, United States and Australia. Included interventions contained counselling or peer-educator training. All studies included an education component specific to hepatitis C. Durations ranged from 30 minutes to 12 hours. The interventions in control groups were varied (including handouts about safe-injecting practices and hepatitis C, videos or education sessions). There was considerable variation in the measurement of injecting risk behaviours (reported in the paper). The mean age of participants ranged from 24 to 41 years. The percentage of males ranged from 53.6% to 76.3%.

Two independent reviewers performed the study selection. Disagreements were resolved through discussion with a third reviewer.

Assessment of study quality
Risk of bias was assessed using the Cochrane risk of bias tool with focus on random sequence generation, allocation concealment, blinding of participants, personnel and outcome assessors, incomplete outcome data, selective outcome reporting and other biases.

Two independent reviewers performed the quality assessment. Discrepancies were resolved by discussion.

Data extraction
Two reviewers performed the data extraction. Where possible, numbers of events were used to calculate relative risk (RR) or odds ratio (OR) with 95% confidence intervals (CI).

Methods of synthesis
A narrative synthesis was provided. Publication bias was assessed by listing studies in order of the number of
participants alongside the statistical significance of results.

**Results of the review**

Six randomised controlled trials (RCTs) were identified (2,472 participants, range 95 to 854). All six RCTs were free of selective reporting. Four trials had adequate sequence generation, allocation concealment and addressed incomplete data. Only one RCT had adequate blinding. Three trials were free of other sources of bias. Follow-up ranged from one month to two years.

**Hepatitis C incidence (three RCTs):** None of the RCTs (two counselling and one peer education intervention) found a significant difference between the intervention and control groups for hepatitis C incidence.

**Injecting frequency (three RCTs):** One RCT of peer education versus controls found a significantly higher level of refraining from injecting after three months (p=0.02) and six months (p=0.0007) follow-up. Two counselling RCTs showed no significant differences between intervention and control groups for refraining after 12 months or in the mean numbers of days injected during a six to 24 month period.

**Injecting risk behaviours (six RCTs):** Two peer education interventions significantly reduced injecting risk behaviours versus controls (proportional OR 0.64, 95% CI 0.44 to 0.94 in an antibody negative study and proportional OR 0.51, 95% CI 0.31 to 0.83 in an antibody positive study). None of the four RCTs of counselling significantly reduced injecting risk behaviours versus controls but two RCTs reported significant reductions in injecting risk behaviours over time in both the intervention and control groups. The authors found no evidence for hepatitis C status affecting the success of the interventions.

**Authors’ conclusions**

Based on the evidence presented, it was unlikely that behavioural interventions can have a considerable effect on hepatitis C transmission. The effect of both peer-educator training and counselling interventions on injecting risk behaviour was similar on both hepatitis C positive and negative participants.

**CRD commentary**

The review addressed a well-defined question in terms of participants, interventions and study design. The inclusion criteria did not make it clear that hepatitis C incidence was the primary outcome (specified only in the discussion). Relevant databases were searched for studies published in any language. The search for unpublished studies was limited, which raised the possibility that relevant studies were overlooked. Only six RCTs were identified so publication bias could not be assessed effectively. The authors reported efforts to reduce error and bias throughout the review process. Study quality was assessed using suitable criteria and the authors reported that there was a medium to high risk of bias.

A narrative synthesis was appropriate as there was a high degree of variation in the interventions, participants and outcome measurement. There appeared to be reporting inconsistencies between the tables and text. The authors noted that some outcome measures were based on self-report and so were subject to observation bias.

In view of the limited evidence and apparent reporting errors in the review, the authors' conclusions should be treated with caution.

**Implications of the review for practice and research**

**Practice:** The authors thought it likely that multi-component interventions (such as counselling and peer education) would be more successful in achieving behavioural outcomes in relation to hepatitis C transmission.

**Research:** The authors suggested that future studies might require much larger sample sizes and better design to detect a direct impact on hepatitis C incidence and risk behaviours.

**Funding**

National Health and Medical Research Council, Australia; Australian Postgraduate Award; Kirby Institute for Infection and Immunity in Society, Australia.

**Bibliographic details**

PubMedID
22000602

DOI
10.1016/j.drugpo.2011.08.002

Original Paper URL

Indexing Status
Subject indexing assigned by NLM

MeSH
Bias (Epidemiology); Counseling; Hepatitis C /epidemiology /prevention & control /transmission; Humans; Needle Sharing; Randomized Controlled Trials as Topic; Risk-Taking; Substance Abuse, Intravenous /complications /psychology

AccessionNumber
12012023752

Date bibliographic record published
10/07/2012

Date abstract record published
15/11/2012

Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.