Willingness to undergo hepatitis C treatment in a sample of injection drug users in Toronto, Canada

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Summary

Background The majority of prevalent and incident hepatitis C (HCV) infections in Canada are related to injection drug use (IDU), thus positioning injection drug users (IDUs) as a critical population to be targeted for HCV treatment. Little research has been undertaken in order to discover the willingness of IDUs to receive HCV treatment, however.

Methods The study sample was part of the Opican (illicit Opioid use in CANada) cohort study of illicit opioid and other drug users in five Canadian cities.

Results Data were collected from a sub-sample of 50 HCV-positive IDUs in Toronto. Four fifths of participants indicated general willingness to participate in HCV treatment. Two conditional treatment questions led to significant decreases in treatment willingness (potential treatment side effects and requirement of addiction treatment).

Conclusion The majority of IDUs in this sample indicated willingness to participate in HCV treatment, yet the particular needs and situations of this marginalized population have to be considered and addressed for responsive HCV treatment delivery.
HCV-infected population. However, the substantial reduction of the disease burden of HCV requires above all the successful inclusion of IDUs in these treatment efforts, as they constitute the largest infected group in Canada today.1,7. Although previous Canadian HCV guidelines excluded active IDUs from HCV treatment, more recent guidelines have eased these categorical restrictions,8 but still do not clearly recommend that active IDUs be considered for HCV treatment, as the NIH Consensus Statement does.9 Few IDUs actually receive treatment for HCV10,11, although this is increasingly seen as a possibility and is practiced in select instances.12,13 It cannot necessarily be assumed that HCV-infected IDUs would be interested in receiving HCV therapy even if it were widely offered and available.7,14 HCV treatment is lengthy, intensive, and imposes considerable strains on the patient. Moreover, such treatment may not be seen as a high priority for IDUs, given their specific living conditions, typically characterized by acute risk of overdose, daily search for drugs and money, legal problems, and lack of housing. For these reasons, this study empirically examined the question of willingness and motivation for HCV treatment in a sample of HCV-infected IDUs.

**Methods**

**EXPERIMENTAL PROCEDURES**

The study sample was part of the “Opican” (Illicit Opioid use in CANada) cohort study of illicit opioid and other drug users in five Canadian cities.15 The principal eligibility criterion for study inclusion at baseline (2002) was regular (at least four days a week, for at least one year, and not in addiction treatment at study entry) illicit opioid use (e.g. heroin, hydromorphone, codeine, oxycodone, etc.). Participants were recruited through outreach and snowball measures, provided informed consent, and were paid a study honorarium. The analysis here uses both baseline and follow-up data, as well as information from an HCV treatment supplementary questionnaire; the latter was available for Toronto subjects only.

**DATA ANALYSIS METHODS**

For the treatment willingness questions, the possible responses for the 5-point Likert scale employed in the questionnaire were: “definitely not willing”, “somewhat not willing”, “neither willing nor unwilling”, “somewhat willing”, “definitely willing”. Answers were converted to dichotomous variables of “less than somewhat willing” (containing the first three responses) and “at least somewhat willing” (containing the last two responses). “Neither willing nor unwilling” was included in the first dichotomous variable as it indicates less than willing (but should not be assumed to indicate not willing). Participants who refused the question or responded “don’t know” were excluded from the analysis. The McNemar test was used to assess whether the treatment conditions resulted in statistically significant differences (p < 0.05 significance level) in willingness compared to the general question. Variations from the overall sample of n = 50 are indicated where applicable.

**Results**

One hundred nine (109) eligible subjects completed the assessment (at follow-up), 53 of whom reported they were HCV-positive, i.e., they had received a positive HCV testing result at some time before completing the study questionnaire. Only those who reported they were HCV-positive and who provided clear responses to all treatment willingness questions were included in the analysis; the sample size for the present analysis is thus 50. The average age of the analysis sample was 42 years (range: 29-60 years). Almost three quarters were male (74.0%), and just over three quarters had completed high school (76.0%). About half (52%) indicated that they lacked permanent housing (e.g., were living in a shelter or on the street), 90% had a history of criminal activity, 92% reported physical health problems, and 54% mental health problems. Further, 58% reported their health status as “fair” or “poor”. The sample was characterized by extensive opioid and non-opioid poly-drug use. Participants reported using Percocet (64%) and codeine formulations (50%), as well as crack (70%), benzodiazepines (72%) and marijuana (78%) in the 30 days before the most recent assessment. Over half the sample (56%) had injected drugs in the past 30 days, and all (100%) had an injection history.

In the overall sample (n = 50), 48% (24) had previously been offered and 38% (19) had requested some form of HCV treatment, but only 14% (7) had ever received any. In response to a general question about their interest in such treatment, most participants (80%) reported that they would be “definitely” or “somewhat” willing to participate in HCV treatment. Subjects were then asked in more detail about their willingness to receive HCV treatment, under various specific scenarios (potential requirements or consequences). The proportion of those who had earlier stated their treatment willingness fell significantly (to 60% for both conditions) for two scenarios: the possibility of side effects and the possible requirement of addiction.
tion treatment. The remaining scenarios had no significant influence. Almost three quarters (74%) of the sample also reported a willingness to reduce their drug use if their HCV could be cured.

Discussion

These results offer a first - brief - glimpse into the willingness of HCV-positive illicit drug users in Canada to receive HCV treatment. Despite existential circumstances dominated by marginality, high-risk drug use and acute health problems, a substantial majority of our sample expressed a general interest in receiving treatment for HCV. There is, of course, no guarantee that IDUs would truly enter and adhere to treatment if admitted, but a growing number of studies demonstrate that IDUs who enter into HCV treatment complete it, at success rates similar to those for community samples and with low rates of re-infection\textsuperscript{13,16}.

The two scenarios that reduced interest in HCV treatment in our study sample require close attention. The first involved the possibility of depression, known to be an important side effect in HCV treatment\textsuperscript{17}. The already elevated prevalence of depressive symptoms in IDU populations compared with the general population\textsuperscript{18} exacerbates the risk of potential depression. This relevance of this risk for treatment provision in this population especially is that "self-medication" dynamics may lead many IDUs to increased illicit drug (stimulant) use activity - and therefore increased potential HCV risk\textsuperscript{7}. Therefore, proactive depression management and psychosocial care are imperative in the HCV treatment of illicit drug users.

Secondly, respondents indicated concerns about the potential combination of HCV and addiction treatment. Several valid reasons exist to combine HCV treatment with addiction treatment (e.g., methadone maintenance), including its potential to lower the risk of HCV re-infection or of other infectious diseases, e.g. HIV. It may also facilitate improved anti-viral treatment delivery and adherence in this typically unstable population by providing a regular anchor point for health-related routines and care\textsuperscript{12,13}. In particular, the setting of substitution treatment may be the best starting point for delivery of HCV care to the problem population of drug users with HCV-HIV coinfection, who are at higher risk of HCV-related morbidity and mortality than similar non-drug-users and for whom continued illicit substance use is associated with reduced treatment response\textsuperscript{19,20}. It must be understood, though, that many illicit drug users either have had multiple - often negative - previous episodes of addiction treatment, or are unhappy with the treatment modalities currently offered\textsuperscript{21}. To meet the long-term goals of HCV treatment in illicit drug users and effectively address the co-morbidity in this high-risk population, it thus seems essential that parallel addiction treatment be offered in a needs-based, integrated and low-threshold fashion.

Clearly, it is impossible to reduce the future HCV burden in Canada without effective HCV treatment delivery to IDU carriers. A large proportion of HCV-infected illicit drug users in our study expressed interest in receiving HCV treatment, although the specific scenarios of certain - realistic - treatment circumstances dampened this interest. This observation is similar to results from a European study, where a substantive proportion of illicit drug users declined the offer of (an older generation of) HCV treatment\textsuperscript{22}. However, the special care needs of IDU populations regarding HCV treatment should by no means be seen as insurmountable barriers. Rather, they need to be addressed by adjustments to the HCV treatment system, adjustments that seem both possible and urgently necessary in view of the public health importance of HCV treatment for IDUs.

Table 1

<table>
<thead>
<tr>
<th>HCV treatment willingness in HCV-infected injection drug users</th>
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<tbody>
<tr>
<td>n = 50</td>
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<tr>
<td>% at least somewhat willing (n)</td>
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<tr>
<td>General question</td>
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<tr>
<td>- How willing would you be to participate in HCV treatment?</td>
</tr>
<tr>
<td>80.0% (40)</td>
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<tr>
<td>Conditional questions: How willing would you be to participate in HCV treatment if...</td>
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<tr>
<td>- The HCV treatment only works for half the people who receive it</td>
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<tr>
<td>70.0% (35)</td>
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<tr>
<td>- Half of people or more on HCV treatment experience side effects such as flu-like symptoms, nausea, depression or liver damage</td>
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<tr>
<td>60.0% (30)*</td>
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<tr>
<td>- HCV treatment requires at least weekly visits to a doctor or clinic</td>
</tr>
<tr>
<td>80.0% (40)</td>
</tr>
<tr>
<td>- Addiction treatment (e.g. methadone maintenance treatment) was required with or before the hepatitis treatment</td>
</tr>
<tr>
<td>60.0% (30)*</td>
</tr>
<tr>
<td>- Before HCV treatment, a liver biopsy would be required (a minor surgical procedure, often done under local anaesthetic, in which small amount of liver tissue is removed and examined under a microscope)</td>
</tr>
<tr>
<td>72.0% (36)</td>
</tr>
<tr>
<td>HCV treatment and drug use (n = 49)</td>
</tr>
<tr>
<td>- Would you be willing to reduce your drug use in order to be cured of the HCV?</td>
</tr>
<tr>
<td>73.5% (36)</td>
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</table>

* indicates a statistically significant difference from the initial question ("How willing would you be to participate in HCV treatment?"); p < 0.05.
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**WHAT WAS KNOWN**

- Injection drug users constitute the major risk group for new HCV infections in Canada and elsewhere.
- Both effective prevention and treatment efforts are required to reduce the burden of disease related to HCV.
- State-of-the-art pegylated interferon/ribavirin treatment is reasonably effective in treating HCV infected persons.
- Several studies have shown that pegylated interferon/ribavirin treatment is feasible and can be effective in HCV-infected injection drug users.
- Illicit drug users as a target population pose a specific challenge for HCV treatment, especially due to the high adherence requirements as well as the high prevalence of depression in illicit drug users (i.e., as a contra-indication for HCV treatment).

**WHAT THIS ARTICLE ADDS**

- In a small sample of HCV-infected illicit opioid and other drug users in Toronto, there was a high degree of general willingness to undergo HCV treatment.
- The willingness to undergo HCV treatment in the sample was principally reduced by the prospects of possible treatment side-effects (i.e., depression) as well as the possible requirement of addiction treatment before or in parallel to HCV treatment.
- HCV treatment for illicit drug users ought to be offered and delivered in ways that address the specific treatment needs and concerns of illicit drug users.
- Specific considerations ought to be given to the proactive treatment of present depressive symptoms, or possible depression side-effects, before or during HCV treatment in illicit drug users.
- While the "embedding" of HCV treatment in addiction treatment programs (e.g., methadone maintenance treatment) may be useful for treatment adherence of illicit drug user patients, the categorical requirement for addiction treatment may deter illicit drug users from considering HCV treatment.

**References**