

# REFERRAL OF INTRAVENOUS DRUG USERS FOR ANTIVIRAL TREATMENT: EFFECTIVENESS OF HEPATITIS C CASE-FINDING PROGRAMMES

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## SUMMARY

**Background:** Hepatitis C infection (HCI) case-finding programmes aim to identify infected persons in a well-defined population. This study assessed the effectiveness of three HCI case-finding programmes for intravenous drug users by examining the rate of their referral to antiviral treatment.

**Methods:** The Hepatology Outpatient Clinic of Szent László Hospital examines and treats all intravenous drug users who are found positive in HCI case-finding programmes in Budapest. The medical records of patients who visited the Hepatology Outpatient Clinic of Szent László Hospital between 1 January 2006 and 31 December 2008 were screened and records indicating a history of drug abuse were selected. These records were matched against the databases of the hepatitis case-finding programmes and the records that appeared in both datasets were analyzed.

**Results:** Of the 234 intravenous drug users identified as hepatitis C virus positive in the Budapest case-finding programmes, only 21 attended the Hepatology Outpatient Clinic of Szent László Hospital and only two started antiviral treatment, but their hepatitis C virus positive status had already been known at the time of screening.

**Conclusion:** In this study, not a single patient with drug abuse whose hepatitis C virus positive status was identified in one of the HCI case-finding programmes was referred for antiviral treatment.

**Key words:** hepatitis C, intravenous drug users, screening programme

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## INTRODUCTION

In many European countries the prevalence of hepatitis C infection (HCI) in intravenous drug users (IDUs) is above 70% (1–5). In Hungary, the corresponding figures were 10–30% (6–8) in the years before 2006. The first large-scale Hungarian HCI case-finding programme for IDUs attending outpatient clinics was organized in 2006 by the National Center for Epidemiology (NCE) followed up by further annual surveys. This programme employed the ‘dried blood spot’ method (9). For financial reasons only a predetermined number of IDUs from the participating outpatient addiction treatment services could be enrolled in these annual surveys. HCI was found in around 25% of IDUs at the national level, although data from Budapest were consistently higher at about 36%, reaching 70% in one needle and syringe exchange programme (Table 1).

In 2006, the Hepatology Outpatient Clinic of Szent László Hospital (HOC–SLH) was charged with the responsibility to examine and treat IDUs found positive in the case-finding programmes. Hepatitis C virus (HCV) antibody blood test, and in cases of a positive finding, subsequent HCV-polymerase chain reaction (HCV–PCR) essay was used as a diagnostic tool in HOC–SLH.

The aim of the study was to assess how many patients identified as HCV positive between 2006 and 2008 in the three case-finding programmes (9) were further examined and treated with antiviral medications in the specialized outpatient clinic (HOC–SLH).

## MATERIALS AND METHODS

The medical records of patients who visited the Hepatology Outpatient Clinic of Szent László Hospital between 1 January 2006 and 31 December 2008 were screened and those indicating a history of drug abuse were selected. The selected records were matched against the databases of the HCI case-finding programmes. The medical records of drug abusers that appeared in both datasets were then analyzed.

## RESULTS

Of the total of 6,759 patients attending the HOC–SLH between January 1, 2006 and December 31, 2008, 123 had a history of drug abuse but only 23 (18 men) participated in the nationwide HCI case-finding programmes (9). Of 234 persons identified as

HCV positive in case-finding programmes targeting intravenous drug users in Budapest in the same period (Table 1), only 21 attended further examination at the HOC–SLH; their records were analyzed in this study.

The clinical characteristics of 21 patients who attended HOC–SLH were as follows. The serological status of 5 patients with negative or inconclusive results (mean age:  $30.8 \pm 4.6$  years) is presented in Table 2. Two patients who attended HOC–SLH before the study period tested negative. Remaining three visited HOC–SLH only once; two patients had blood tests to verify the screening result and the third case, a forensic patient, was examined upon the request of the forensic health service. Two additional patients tested antibody positive; one had normal liver functions, therefore, at this stage only follow-up and observation was recommended. No further investigations were carried out in the other case due to ongoing drug abuse.

One patient was HCV–PCR negative; in further two cases, although the PCR was positive, liver functions were normal, thus no treatment was started at this point. Seven patients failed to comply with the 3-month abstinence period stipulated for entry into the interferon treatment programme. Once it became clear that such abstinence was a prerequisite for interferon treatment, these patients stopped attending HOC–SLH after 1 to 2 visits. In one case, the examination was terminated after an epileptic seizure and another patient was found to be pregnant.

Nine patients, including the only two to eventually start interferon treatment, received methadone maintenance treatment (MMT). Two patients receiving interferon treatment were the oldest (at 48 and 49 years of age) in the entire study sample. Both had begun abusing drugs intravenously more than 10 years before the

commencement of the study and they had been in the methadone maintenance programme for 5 and 8 years, respectively. Their condition was already known at the time of screening, having been infected with HCV for 8 and 14 years, respectively. At the time of writing this paper their treatment was ongoing and their PCR was negative after three months of treatment.

## DISCUSSION

One third of the patients who had tested HCV positive and were referred to HOC–SLH failed to abstain from drug abuse at the time of examination. It seems that active drug users demonstrate poor treatment adherence (10), which prevents them from receiving proper care as the Hungarian guidelines for the treatment of hepatitis stipulate abstinence as a prerequisite (11). Having learned that abstinence is a prerequisite to treatment, active drug users defaulted subsequent examinations. There are several explanations why such a high proportion of active drug users may have approached HOC–SLH for antiviral treatment. It may well be that some addiction treatment programmes did not require abstinence and their staff members were not aware of this requirement for antiviral therapy. It is also likely that patients sought treatment even though they were fully aware of the requirement for abstinence; e.g. one patient attempted to obtain a certificate of abstinence from an addiction treatment centre several times despite ongoing drug abuse. None of the 21 HCV-positive patients in this study regarded the opportunity to receive interferon treatment as sufficiently motivating to start treatment for their addiction.

**Table 1.** Number of HCV-positive intravenous drug users found in nationwide screening programmes in Hungary between 2006 and 2008

	2006		2007		2008		Total	
	Number of persons screened	HCV+	Number of persons screened	HCV+	Number of persons screened	HCV+	Number of persons screened	HCV+
Budapest	170	59(35%)	262	94(36%)	218	81(37%)	650	234(36%)
Outside of Budapest	125	23(18%)	199	20(10%)	203	12(6%)	527	55(10%)
Total	295	82(28%)	461	114(25%)	421	93(22%)	1177	289(25%)

**Table 2.** Patients screened with negative or inconclusive results during the three case-finding surveys

	Results of case-finding in 2006	Results of case-finding in 2007	Results of case-finding in 2008	Other results	Results in HOC–SLH
1. patient	Inconclusive	Pos.			Pos. 2007
2. patient*	Neg.			Screening in prison (2008): pos.	Recommendation for further examinations 2008
3. patient	Neg.		Inconclusive		Pos. with normal liver function 2008
4. patient*		Neg.		Pheresis (2008): pos.	HCV–PCR: +
5. patient*	Inconclusive	Pos.			HCV–PCR: - 2007

\*Indicates patients who attended only one examination. Hepatitis C virus (HCV) antibody blood test, and in cases of a positive finding, subsequent HCV–polymerase chain reaction (HCV–PCR) essay was used as a diagnostic tool in HOC–SLH.

In Hungary, the number of intravenous opiate users was estimated to be around 2,000–2,500 between 2003 and 2007 (12). In the same period, the number of those engaged in opiate substitution treatment was 730–770 (13), a mere 30–38% of estimated intravenous opiate users. It is of note that the percentage of MMT clients (43%) among patients applying for antiviral treatment in the study sample was higher than that among opiate users, possibly reflecting MMT clients' better cooperation and greater sense of responsibility for their own health. It seems that a longer period of participation in MMT, older age and longer period of abstinence are predictors of good cooperation in interferon treatment.

In general, we are rather pessimistic about the effectiveness of HCV case-finding programmes for IDUs given the small number of patients who eventually received antiviral treatment. In this study, not a single patient whose HCV-positive status had been identified in one of these programmes was referred for antiviral treatment. Our findings are in accordance with the similarly poor results of a general practice-based screening programme conducted in Scotland. In the Scottish survey, the majority of IDUs was screened positive (13/15), but only two received treatment and one achieved sustained viral response (14). Our results do not support the conclusion of a systematic review (15) that concluded that testing for HCV in former IDUs is a cost-effective intervention. However, in this review (15) the screening programmes targeted former IDUs, while in the Hungarian case-finding programmes abstinence was not required.

The possible indirect benefits of case-finding programmes are enhanced motivation to achieve abstinence and harm reduction through discouraging needle sharing and other drug paraphernalia (16, 17).

Although HOC–SLH was charged with the task for treating drug users identified as HCV positive in the case-finding programmes, patients had the right to seek treatment in any hepatology clinic in Budapest or other cities. Thus the failure to identify all HCV-positive drug addicts and the relatively small sample size constitute the major limitations of this study.

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