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Hepatitis C in homeless people: reaching a hard-to-reach population.

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ABSTRACT

The aim of this study is to analyse the process of detection and treatment of hepatitis C in individuals experiencing homelessness (IEH). An analytical cross-sectional study was conducted in a primary care centre. The centre screened and registered patients with a positive hepatitis C antibody test and referred them to the digestology service. 8.3% presented with a positive HCV antibody test, of which 6 were patients who had already received treatment. Of those who had not received treatment, one patient was successfully treated. 30.8% of the total could not be located or did not wish to participate. Community coordination and the use of rapid tests would improve detection.

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Keywords

Homeless people; homelessness; hepatitis C virus; social exclusion; poverty.

List of abbreviations

IEH. Individuals Experiencing Homelessness

HIV. Human Immunodeficiency Virus

HCV. Hepatitis C Virus.

PHCC. Primary Health Care Centre

INTRODUCTION

One of the World Health Organization's goals is the elimination of viral hepatitis in Europe by the year 2030 (4). Individuals Experiencing Homelessness (IEH) are at a higher risk of infection with the hepatitis C virus (HCV) (1) with rates of 4 to 36% (2), well above the Spanish average of 1.7% (3).

In Spain, the national health system's Strategic Plan for the Management of Hepatitis C [*Plan Estratégico para el Abordaje de la Hepatitis C*] has made it possible to treat more than 140,000 patients since 2015 (5). Given the simplicity and efficacy of new treatments, the incidence and complications derived from chronic HCV infection have decreased (6). At present, in developed countries, hepatitis C is concentrated in hard-to-reach populations, such as IEH.

The aim of this study is to describe the process of detection and treatment of HCV infection in IEH in Girona and to analyse the factors which contributed to or hindered the intervention.

METHOD

Study design

An analytical cross-sectional study, with the study population being all IEH in the city of Girona between June and November 2019. The six-month study included all the IEH who visited Girona's municipal homeless shelter. The final sample included 133 IEH.

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Procedure

In May 2019, the Hepatitis-C Hospital Unit (H-CHU) contacted the referral Primary Health Care Centre (PHCC) of Girona's municipal IEH shelter to detect those infected with HCV. First, the HVC status and sociodemographic status of the sample was determined and their medical records were reviewed. Second, those with a recent negative HCV antibody test were distinguished from those with a positive result or no test result.

The IEH who tested positive for HCV and with a high viral load were referred to the H-CHU. Those who had not had a blood test were offered one and were referred to the PHCC. Specialized teams involving outreach workers, shelter employees, and the PHCC supervised the follow-up, compliance and final result of the treatment.

Ethical considerations

This research is subject to the ethical standards of the Helsinki declaration. The participants were verbally informed of the study and gave their consent for the use of their data anonymously and confidentially, for research purposes.

Statistical analysis

Measures of central tendency and dispersion were used for the description of quantitative variables, and absolute and relative frequencies for the qualitative variables. The Student's t-test was used to compare means, or the Mann-Whitney U test was used for independent samples according to normality, and the chi-square test for categorical variables. A binary logistic regression analysis with diagnosis as the dependent variable was adjusted to determine the predictive variables of a positive diagnosis.

RESULTS

Of the 133 cases included in the study, 80.5% were men (n = 107) and 19.5% were women (n = 26). The mean age was 45.4 years (SD = 13.1), and no age differences

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were found according to gender (Men = 44.8 years; SD = 13.3; Women = 47.6 years; SD = 12.1; t = 0.96; gl = 131; p = 0.339).

The review of the subjects' medical records determined that 69 IEH (51.9%) were HCV negative. Of the remainder, that is, 48.1% (n = 64), 11 cases were confirmed HCV positive. Of the 11 positive cases, 6 had previously received treatment and had an undetectable viral load. Of the remaining 5, one case was successfully treated, the other either 4 could not be located or did not wish to be treated.

Of the 53 without a recent laboratory test (39.8% of the total sample), 12 were located and were all found to be HCV negative. Therefore, 41 could not be tested because they could not be located or did not wish to participate.

Of the total sample, the total number of positive HCV antibody tests was 11 (8.3%), and the detection of a positive viral load was 1 case (0.8%) (See Figure 1).

No gender or age differences were found regarding the diagnostic status of the total sample (See Table 1). However, including in the analysis only those cases which could be tested (n = 92), it was found that HCV positive individuals were older than HCV negative (Positive = 53.4 years; SD = 8.5 vs. Negative = 44.2 years; SD = 12.5; Mann-Whitney U = 5.58; gl = 1; p = 0.02).

The binary logistic regression analysis determined an older age as a predictor of a positive HCV antibody test (See Table 2).

DISCUSSION

The results of this study show that although the majority of IEH have a negative HCV antibody test, the number of positive cases reported was almost 5 times higher than for the general population (8.3% vs. 1.7% respectively) (3) . Of the positive cases, nearly half could not be treated due to the fact that the participants could not be located or did not agree to participate, to which a significant number of lost cases were added. This indicated notable difficulties in carrying out the follow-up and treatment of the cases.

A study carried out in Dublin in 2017, screened 597 IEH (7) and found that 199 (33.3%) had a positive HCV antibody test. These were offered treatment, only 2 of which

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complied with it successfully. Another study from Girona showed a positive HCV rate of 11.7% (8). Both investigations presented a higher rate than that found in our study, a fact which may be due to the decrease in transmission and incidence thanks to the efficacy of the new treatments introduced in the 3 intervening years.

IEH possess unique characteristics which must be taken into account in future interventions. Homelessness and marginal housing are considered contraindications for HCV treatment as they hinder the success of the intervention (9). Having spent the night in a shelter before a treatment has been found to increase adherence and success rates (10). Coordination between social services and health services improves accessibility and compliance with treatment.

It was not possible to perform a high percentage of blood tests in the study. This was partly due to the difficulties involved with locating the participants. Other challenges for this population are the fact that health centres perform blood tests in the early morning, individuals are required to remain in the waiting room until the extraction and they need to share the space with other patients while adhering to certain rules of conduct. The use of a rapid saliva-based antibody test which could be also conducted on the street would help improve detection.

The number of infected patients who managed to complete the treatment was also low, despite the simplicity of current treatments and the little hospital follow-up they require. Care coordination between GPs and other medical specialists, including mental health services, is necessary for the management of IEH patients (11). Therapeutic compliance should also be improved by facilitating the dispensing of antivirals in health centres (12,13), directly observed therapy (14) and supervision by teams of social workers/educators on the street.

The benefits of information and communication technology, eHealth, mHealth and telemedicine, which have been shown to improve adherence to treatment among IEHs, should not be ignored (15).

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Table 1. Differences in diagnostic status after the intervention, according to sociodemographic variable

	Diagnostic status			Values		
	Positive	Negative	Not tested	X^2/F	gl	p
Sex $_{n(\%)}$						
Male	10(9.3)	61(57.0)	36(33.6)	3.54	2	0.171
Female	1(3.8)	20(76.9)	5(12.2)			
Total	11(8.3)	81(60.9)	41(30.8)			
Age $_{M(SD)}$	53.4(8.5)	44.2(12.4)	45.6(14.7)	2.44	2	0.91

Table 2. Binary logistic regression analysis with the dependent variable diagnostic result hepatitis-C virus (Cox and Snell R-square = 0.059; Nagelkerke R-square = 0.115)

	B	Standard Error	Wald	gl	p	Exp(B)
Constant	-5.245	1.593	10.84	1	0.001	0.005
Age	0.066	0.030	4.933	1	0.026	1.069

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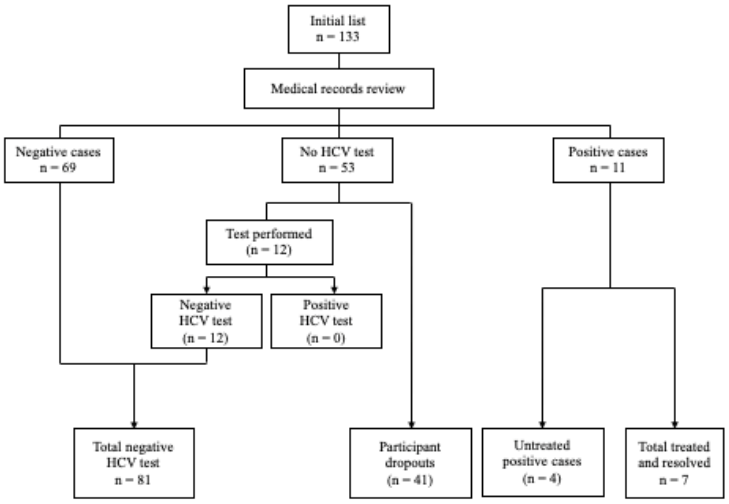

Figure 1.

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