

EDITORIAL

Is HCV elimination possible in prison?*

Hepatitis C virus (HCV) infection entails a global public health issue, with between 65 and 80 million people affected according to the latest estimates¹. In Spain, the number of infected patients have dropped dramatically according to the latest epidemiological studies, with a prevalence rate of around 1.2% in the general population. Moreover, the number of viraemic patients is surprisingly low, in any case of no more than 50% of patients with antibodies against HCV^{2,3}. In prisons however, the prevalence is ten times higher than the global prevalence, mainly due to high-risk habits (injecting drug use –IDU). The latest available data suggest that the prevalence is around 14.8% for prisons managed by the Ministry of the Interior and 12% for prisons in Catalonia⁴. This prevalence has progressively been reduced throughout recent years (alike the prevalence of HIV and the number of IDUs among inmates) due both to enforced prevention measures targeted at modifying high-risk behaviors, and more recently due to the implementation of treatment for many of these inmates⁵.

In April 2012, the National Strategic Plan on the Approach of Hepatitis C was published, thus definitely changing the management of hepatitis C in Spain, which is currently the country where more patients per million inhabitants have been treated worldwide and which has made the eradication of hepatitis C an objective within reach⁶. This plan envisages the imprisoned population as a priority objective regarding the prevention, diagnosis and treatment of the disease. Although we do not intend to review the many initiatives developed to eliminate hepatitis C after the publication of the National Plan, we must state that without any doubt one of the more relevant is the Alliance for the Elimination of Hepatitis C (which arose in the context of the Congress of the Spanish Association for the study of the liver *Sociedad Española para el estudio del hígado*) and whose main objective is to unite the efforts of physicians, scientific

societies, associations and patients to fight against viral hepatitis.

We must therefore consider the elimination of HCV in this precise context – with a significant reduction of the prevalence of HCV in our penitentiary institutions together with both a national and international environment that favors the treatment of patients infected by this virus. The authors of this Editorial firmly believe that this elimination is not only possible, but that it could be achieved even before than in the general population. In order to achieve this ambitious objective several measures should be taken, among which it is worth considering the following:

Universal screening of the infection. For certain populations, such as the imprisoned, universal screening is cost-efficient. Overall, it is recommended that the serological status of this population be assessed on a yearly basis. Despite this fact, around 25% of inmates are unaware of the infection⁷. In Spain upon imprisonment, the study of HCV is offered and carried out except for extremely short stays or in case inmates refuse to do so. Nevertheless, according to the Sub-Directorate General for the Coordination of Prison Health, screening rates in different facilities in 2015 were very heterogeneous (between 57 and 99%). A simple way to encourage screening in this population is to implement rapid tests by means of antibody detection in capillary samples, dried blood testing or saliva samples. These have proven extremely useful in screening populations of difficult access such as the imprisoned⁸. Therefore, a first step towards the elimination of HCV should be the implementation of systematic screening in prisons with these new techniques.

1. Health education programs and the intensification and expansion of harm reduction measures to all inmates, regardless of their serological status, contributes decisively to the control of infection. Probably, prevention has been the issue where more work has

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been dedicated. Harm reduction programs have increased the availability and use of sterile material for IDUs therefore contributing to the lower prevalence of HCV throughout recent years in prisons. Harm reduction programs are relevant both inside and outside prisons. Moreover, opioid substitution therapies have also played a role in the control of the infection. We must remember that IDU accounts for around 90% of new-onset HCV infections⁹ and on the other hand, a high proportion of ID users is admitted to prison at some point. Therefore, measures should be aimed at both ID users and inmates. In the road towards the elimination of HCV, education should be encouraged among inmates and their healthcare providers, therefore allowing a reduced risk of transmission, as well as promoting harm reduction measures, which have been implemented in our country for many years now.

2. Yet, beyond any doubt, one of the cornerstones towards the elimination of hepatitis C is a systematic organized rapid treatment of all infected patients. This should be based on the same principles than those applied to the general population:

3. The imprisoned population should be treated under the same principle of equity than the general population. Although the situation has changed considerably throughout recent years, to fully meet this objective we should aim at integrating prison healthcare within the general health system, as in some countries in the European Union and in Catalonia and the Basque Country. We should not forget that being imprisoned entails for many marginalized individuals (IDUs, alcoholics, illegal immigrants, etc.) a critical moment in their life and an unique opportunity for the appropriate diagnosis and treatment of conditions which can otherwise go unnoticed, such as the infection by HCV. Thus, imprisonment can provide a unique opportunity to improve the health of these individuals.

- a. The most effective treatment possible should be provided as in the rest of infected individuals although particular attention should be paid to the various potential interactions. Single dose regimens simplify therapeutic adherence in some cases, although several studies support that a previous record of drug abuse does not compromise therapeutic adherence, termination of treatment nor the rate of sustained virologic response (SVR)¹⁰. Likewise, recent or concomitant use of injected drugs seems to have a limited impact on therapeutic adherence, termination of treatment or the

rate of SVR¹¹. An analysis of time series by means of exponential smoothing in Catalan prisoners estimates that by eliminating the restrictions of treatment for F0-F1, the prevalence of the infection could drop to < 1% before five years¹².

- b. The creation of healthcare circuits that grants continuity, surveillance of potential reinfection and screening of potential tumors in patients who initiated treatment with an advanced stage of the disease is mandatory. In order to successfully meet this objective action protocols should be designed between prison healthcare units and reference hospitals and training plans for prison healthcare providers should be implemented on this matter. Although the reinfection rate among IDUs after successful treatment with SVR is relatively low, of around 2-6/100 individuals/year¹³, it is clear that in the long term, the success of elimination policies involves the appropriate control of populations at risk for reinfection.
- c. Utilization of new healthcare resources. Throughout recent years, several HCV elimination models have been developed. One of the pioneers was Project ECHO (Extension for Community Healthcare Outcomes) in New Mexico. This project was launched with the purpose to connect underserved communities with specialty care services by using telehealth programs that allowed close communication between specialists and primary care clinicians. This model has been used to bring over HCV treatment to the general community¹⁴ and the imprisoned too¹⁵. Our team is also developing an innovative HCV elimination program in the prison of El Dueso (Cantabria) since February 2015. The program JailFree-C involves a multidisciplinary team of hepatologists, prison physicians, specialized nurses, radiologists, infectologists, pharmacists, psychologists, addiction specialists, social educators and specialists in telemedicine. This project is based on the universal screening of inmates and ulterior treatment of all viraemic patients with direct-acting antivirals (DAAs), using telemedicine as a means to control treatment. So far, the project has proved a success: 821 inmates have been tested, with a screening rate of 99.51%. 81 inmates were viraemic (9.9%) in this population, 64 of which received treatment with

Ledipasvir/Sofosbuvir (the rest were not treated due to short stays, they were informed of their current situation and the possibilities of treatment on their reference hospitals or new prisons). The rate of SVR was similar as that of the general population. Currently, only 2 out of 389 inmates are viraemic (0.5%) and they are awaiting the initiation of treatment. No reinfections have been detected so far^{16,17}.

- d. Our prison and healthcare authorities as well as the general population should be informed of the impact that HCV treatment in prison has on society. HCV elimination not only does it impact at an individual level, but it entails relevant benefits for society. Prisons should not be considered a self-contained area, since inmates can go out and come back due to several reasons and therefore HCV infection and transmission can take place both inside and outside prison. For that matter, several modelling studies suggest that treatment of IDUs and inmates reduces the transmission and global prevalence of HCV^{7,19}.

4. We believe that HCV elimination is possible and that prisons are a healthcare opportunity for this collective. Therefore, we should encourage systematic screening of these patients, promote the access to treatment by supporting equity with the general population and increase the prevention of HCV transmission with harm reduction strategies both inside and outside prison. Therapeutic models such as JailFree-C or estimation models such as that by dr. Marco prove that elimination is possible, thanks to the work of multidisciplinary teams, the use of new technologies and the support of the pharmaceutical industry and the institutions.

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