

A support programme for primary care leads to substantial improvements in the effectiveness of a public hepatitis C campaign

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Introduction. Because of its lack of clinical signs, the detection of hepatitis C virus (HCV) infection in the Netherlands remains suboptimal. Therefore, the Dutch Health Council proposed an HCV campaign aimed to inform the general public and motivate people at risk to seek medical advice. Because knowledge and awareness of HCV infection is low among primary care workers, the implementation of a support programme for primary care complementary to a HCV campaign seems appropriate.

Objective. To evaluate the added value of a support programme for primary care complementary to a public HCV campaign.

Methods. We performed a non-randomized controlled intervention study. In two similar regions, a public HCV campaign was organized. In the intervention region, an additional support for primary care was provided by means of brochures, short courses and informative visits.

Results. In the intervention region, the proportional increase in anti-HCV tests was 3.02 (57–172 tests). In the control region, this increase was 1.36 (86–118 tests). In the intervention region, the increase in positive anti-HCV tests was 1.7% (95% confidence interval (CI): –0.2% to –3.7%). In the control region, this number decreased by 0.9% (95% CI: –4.1% to 2.3%).

Conclusions. The addition of primary care practice support leads to considerable improvements in medical consciousness regarding HCV infection in primary care. Even though the positive effect on case finding cannot be indisputably demonstrated due to low prevalence, our results indicate such a positive effect. Therefore, future campaigns aimed at hepatitis C should invariably implement additional support for primary care to improve diagnostic uptake and optimize case finding.

Keywords. Hepatitis C, HCV, primary care, general practice, campaign.

Introduction

Infection with hepatitis C virus (HCV) is a global problem, affecting ~3% of the world's population and between 0.1% and 0.4% of the Dutch population.^{1–4} Because the disease often presents without typical clinical signs, it is estimated that only a quarter of the hepatitis C carriers in the Netherlands has been diagnosed.^{3–5} Acute HCV infection leads to chronic hepatitis in 80% of cases of which 20% develop liver cirrhosis after 20–30 years. Of those with cirrhosis, 1%–4% develops hepatocellular cancer annually. HCV is responsible for 50%–76% of all cases of liver cancer and two-thirds of all liver transplants in the western world.^{1,5,6} In the past decade, treatment has improved

dramatically with regard to success rate and treatment duration. Today 40%–50% of patients carrying HCV genotype type 1 and 4 and >75% of patients carrying genotype 2 and 3 can be cured with antiviral treatment, which lasts a maximum of 48 weeks.^{6–9}

Infection with HCV can only occur if blood–blood contact has taken place. The strictly blood-bound infectious pathway determines several risk groups that are seriously at risk of hepatitis C infection in present or past^{3,10} (Table 1).

Because of the improved treatment possibilities and the low percentage of diagnosed patients, the Dutch government has initiated a hepatitis C public awareness campaign, which is to be implemented by The Netherlands Institute for Health Promotion (Nationaal

TABLE 1 *Hepatitis C risk groups*

The following groups have been identified as risk groups^{3,10}:

- The (former) use of hard drugs, especially intravenous drug use (IVDU).
- First generation immigrants from countries with prevalences >10%.¹¹ These countries are Egypt, Burundi, Cameroon, Guinea, Bolivia, Mongolia and Rwanda.
- Travellers to countries with a prevalence >2%,¹¹ who have been exposed to
 - Any medical treatment during which the skin was pierced.
 - A tattoo or piercing.
 - Ritual acts during which the skin was pierced, such as circumcision or scarification.
 - Working in a health care setting where blood contact is feasible.
- Recipients of blood products in western countries (Western Europe, USA and Australia) before 1992 and in non-western countries up to today.
- Family members of hepatitis C positive patients who have lived with the carrier for more than 1 year.
- Professionals who have an occupational risk of blood contact with hepatitis C risk groups.
- Patients who have undergone dialysis and haemophiliacs are also at serious risk of having been infected with hepatitis C. Since testing these patients for hepatitis C is common practice, the hepatitis C campaign is not aimed at this risk group.

Instituut voor Gezondheidsbevordering en Ziektepreventie). This campaign aims to increase public awareness of hepatitis C and stimulates those at increased risk of HCV infection to consult their GP or the regional Public Health Service (Gemeentelijke Gezondheidsdienst) for testing and, if positive, referral for treatment.¹²

GPs are expected to play a leading role in the implementation of this campaign through individual risk assessment and testing of those who are alerted by the campaign or identified in routine practice. However, awareness of hepatitis C among GPs is traditionally low in the Netherlands. In addition, a lack of knowledge about risk groups and infection pathways leads to varying attitudes, low test rates and inadequate referral for treatment.¹³

In order to make the campaign successful, knowledge of GPs about HCV needs to be improved. As previous studies have shown that educational sessions and practice support are an effective way to improve GP participation, these measures were incorporated in the HCV campaign.^{3,12–17}

The objective of this study was to evaluate the added value of a complimentary primary care support programme to a public hepatitis C campaign, aimed at increasing awareness and identifying patients with hepatitis C infection.

Methods

Setting

A non-randomized controlled intervention study took place in primary care practices in two regions in the

Netherlands, comparable in population and demography. The Amersfoort region, a central region with 110 GP practices, served as intervention region and Apeldoorn, a region in the east of the Netherlands with 109 practices, served as control region. All GPs who were not related to shelters for drug and alcohol addicts were included.

Intervention

In both regions, the public campaign was implemented, only in the intervention region the support programme for primary care was carried out. The public campaign consisted of radio and newspaper ads and information material distributed at public places, all aiming at increasing public awareness about HCV risk. The support programme for primary care consisted of three strategies:

Distribution of educational material regarding hepatitis C, specifically designed for the hepatitis C campaign. The material contained elaborate information on risk factors, treatment and testing of hepatitis C. It was developed in collaboration with the Dutch College of General Practitioners and distributed among all primary care practices.

Educational sessions for GPs on HCV management, both in small groups (5–12 GPs) and larger plenary courses (41 GPs).

In practice support for HCV risk assessment. Two practice facilitators were assigned to provide personal support during campaign to GPs assistants, primary care nurses and GPs, as a form of academic detailing.¹⁷ During the visits of the practice facilitator, the risk groups of hepatitis C were emphasized.

The intervention period started with the public campaign and lasted for 4 months (October 2007 to January 2008). The training for GPs took place in the first month of the intervention period. The support programme for primary care was provided throughout the entire 4-month intervention period.

Outcome

Main outcome parameters were (i) the number of anti-HCV tests requested by GPs and (ii) the number of positive tests.

Measurements and data collection

The regional laboratories of hospitals provided the data on anti-HCV tests. Positive tests were confirmed using polymerase chain reaction for HCV RNA testing.

Analysis

Results were compared between intervention and control group and corrected for the number of tests in the comparable time period before intervention. Analyses were performed using Excel and R statistical package.

Crude proportion testing was used to determine 95% confidence intervals (CI).

This study did not require ethical approval since all collected data were entirely anonymous and without any resulting consequences for patients, GPs, GPs assistants or primary care nurses.

Results

GP participation

The short courses and the plenary course were attended by 70% of all GPs. The practice facilitators paid visits to all primary care practices twice during the intervention period.

Number of tests

In the intervention region, the number of anti-HCV tests increased from 57 tests in previous years to 172 tests during the intervention period. As shown in Table 2, this is a proportional increase in tests of 3.02. The average number of tests performed per GP increased from 0.5 tests in previous years to 1.6 tests during the campaign.

In the control region, the number of anti-HCV tests increased from 86 tests in previous years to 118 tests during the intervention period. As shown in Table 2, this is a proportional increase in tests of 1.36. The average number of tests performed per GP increased from 0.8 tests in previous years to 1.1 tests during the campaign.

Consequently, the increase in number of anti-HCV tests in the intervention region is 2.2 (95% CI: 1.5–3.3) times as high as it is in the control region.

Number of positive tests

In the intervention region, the number of positive tests increased from an average of 0 out of 57 tests in similar periods in previous years to 3 out of 172 during the intervention period. This is an increase of 1.7% (95% CI: –0.2 to 3.7%) in the percentage of positive tests.

In the control region, the number of positive tests decreased from an average of 1.5 out of 86 in similar periods in previous years to 1 out of 118 during the intervention period. This is a decrease of 0.9% (95% CI: –4.1 to 2.3%).

Consequently, the difference in increase in the percentage of positive tests is 2.6% (95% CI: –0.7% to 5.8%).

Discussion

Summary of findings

The addition of a support programme for primary care to a public hepatitis C campaign has a clearly positive effect on the number of anti-HCV tests, demonstrated by a more than 2-fold increase (2.2) as compared to a hepatitis C campaign without an additional support programme. The effect of additional support on case finding of possible HCV patients was not indisputable due to a low number of cases, but our results indicate that there is a positive effect on the percentage of positive HCV tests.

Based on the results from the hepatitis C campaign with and without the additional support programme, a rough estimation can be made of the effect of a national campaign. The campaign without a support programme would lead to an estimated increase in tests of ~3000 countrywide. If a support programme is implemented complementary to the campaign, the expected increase in number of anti-HCV tests is 7000, which would lead to the identification of an additional 146 HCV carriers countrywide.

Previous hepatitis C campaigns have proven to be potentially cost-effective (incremental cost-effectiveness ratio 20.000–25.000), when focussed on populations with elevated HCV prevalence.^{18–20} To evaluate the cost-effectiveness of the different strategies used in this hepatitis C campaign, a country-specific model should be developed. The effect of this campaign however should not be expressed exclusively in the number of identified HCV carriers but should also consider the importance and moral obligation of informing the general public and medical professionals of a very serious but curable disease.

The substantially larger increase in number of tests in the intervention region is likely to be the result of an increase in awareness among GPs and practice nurses. This confirms the conclusions in the literature that educational sessions, the employment of practice facilitators and information sent by mail are an effective way to improve participation of primary care practices in public campaigns.^{14–17}

The positive effect of actively involving medical professionals in a hepatitis C campaign was also demonstrated by a campaign aimed at improving the diagnosis of hepatitis C among risk groups by training

TABLE 2 Anti-HCV tests—October 2005 to January 2006, October 2006 to January 2007 and October 2007 to January 2008

Time period	Mean October 2005 to January 2006 to October 2006 to January 2007		October 2007 to January 2008		Proportional increase in number of anti-HCV tests	Increase in % positive (95% CI)
	Region	Number of tests	Anti-HCV positive	Number of tests		
Intervention		57	0 (0%)	172	3 (1.7%)	1.7% (–0.2 to 3.7%)
Control		86	1.5 (1.7%)	118	1 (0.8%)	–0.9% (–4.1 to 2.3%)

private practitioners (specialists and GPs) in France. This campaign demonstrated that informing and training private practitioners leads to a more active involvement, resulting in higher rates of HCV testing and improved case finding.²¹ A study on the approach of risk groups by GPs, also performed in France, demonstrated not only an increase in HCV identification but also showed that a strategy aimed at improving the identification of HCV carriers exclusively based on case finding by the GP is, as a single intervention, not powerful enough to reach risk groups in need of HCV testing.²²

A hepatitis C campaign in Australia has demonstrated that a public campaign aimed at informing the general public is an effective strategy to rise interest and improve general knowledge about hepatitis C.^{23,24} The limited increase in the number of anti-HCV test, in the control region shown in our study, indicates that this increase in awareness resulting from a public awareness campaign without additional support for primary care is moderate compared to a campaign including a support programme.

The findings of the above-mentioned studies support our conclusion that combining a public campaign with a support programme for primary care is vital in optimizing the increase in awareness and knowledge among risk groups, actively involving medical professionals and improving the conditions for increased awareness and case finding in a primary care setting.

Despite this substantial increase in the number of tests in the intervention region, the improvement in case finding is quite small (1.7%). This is to be expected because

It is plausible that before the campaign only patients with a very high risk were tested (e.g. intravenous drug users). During the campaign, a large group of patients with a relatively low risk (e.g. blood recipients) will be activated to seek medical attention and therefore a low percentage of these patients will have a positive anti-HCV test.

The prevalence of hepatitis C is expected to be subject to regional influences due to variations in the presence of HCV risk groups. Since the intervention and control region are only average sized cities in the Netherlands, this might have lead to relatively low case finding in these areas.

It is possible that the prevalence of hepatitis C in the Netherlands is lower in reality than the expected 0.1%–0.4%.^{3,4} This would lead to low case finding in the whole of the Netherlands and insufficient numbers to show significant improvements in case finding in our data.

This was a pragmatic pilot study, evaluating the effect of an additional support programme for primary care on HCV awareness in which actual case finding was a matter of secondary importance. Ideally, we

would have chosen an intervention and a control region sufficiently large to detect a predefined effect on case finding. Given the low prevalence of hepatitis C, this was not an attainable objective. Even though our results do indicate a positive effect of additional support for primary care on case finding, this pilot study was not powered to indisputably demonstrate this.

The increase of the population of the intervention and control region during the research period was very small (1.48% and 1.65%, respectively). Since there were no indications that the small increase in the population of both regions resulted in changes in the presence of hepatitis C risk groups, we considered the effect of population growth negligible for our results.

This study presents the results of a well-organized government-initiated hepatitis C campaign in two regions, which are of average size and population composition. Therefore, it provides pragmatic results and a realistic representation of the effects of a hepatitis C campaign in the Netherlands.

Conclusions

The addition of primary care practice support leads to considerable improvements in medical consciousness regarding hepatitis C in primary care. Even though the positive effect on case finding cannot be indisputably demonstrated due to low prevalence, our results do indicate such a positive effect. Therefore, future campaigns aimed at hepatitis C should invariably implement additional primary care practice support to improve diagnostic uptake and optimize hepatitis C case finding.

Declaration

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Ethical approval: none.

Conflicts of interest: none.

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