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Evaluation of patients whose HCV serology was investigated in our hospital between 2010-2018

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Abstract

HCV infection is commonly asymptomatic, most people infected with HCV are not aware that they are infected, and most of those who receive a diagnosis also currently cannot reach treatment. Our study, it was aimed to appreciate the rate of anti-HCV-positive patients and the awareness and knowledge of patients about their hepatitis C follow-up or treatment. In this study, we evaluated 56.115 patients who were screened for anti-HCV tests retrospectively. The patients who have positive HCV RNA tests with anti-HCV tests and without having HCV RNA test results were attempted to reach by phone. Anti-HCV positivity was determined in 708 (1.3%) patients. The mean age of 708 patients (Female, n=415;58.6%, and male, n=293;41.4%) was 63 years. Anti-HCV was positive in 708 patients, HCV RNA test was positive in 324 (45.8%) patients and negative in 163 (23.0%) patients. In 221 (31.2%) patients with positive of anti-HCV tests. The distribution rates of the requesting HCV RNA test in departments were: 41.8% in the infectious department, 39.4% in the internal department, 18.8% in the surgery department. Among 324 patients, 65 of them were phoned. Among 65 patients, 14 of them were being treated in another center, 11 of them were treated in our hospital. Among 221 patients who were not tested for HCV RNA 74 of them were phoned. Among 74 patients, 16 of them were being treated in another center and 7 of them were treated in our hospital. We found that the knowledge of physicians about HCV screening and treatment is low in the eradication of HCV. This situation emerged as the most important limitation of the study. Therefore, education programs about the notification of the HCV cases to the doctors for diagnosis and treatment may be beneficial.

Keywords: Chronic hepatitis C, awareness, screening

Introduction

Hepatitis C virus (HCV) caused Chronic hepatitis C (CHC) that is a common public health problem. It is one of the major reason of morbidity and mortality [1]. An estimated 71 million people are infected with HCV in the worldwide [2]. World Health Organization reported that 290.000 people died from HCV-related liver failure or HCC (Hepatocellular carcinoma) in 2019 [3]. HCV prevalence is low in Turkey with an estimated rate of 0.4-2.1% [4].

The people infected HCV should be identified and treatment. HCV infection is commonly asymptomatic. Most of the people infected with HCV are not know that they are infected, and currently cannot reach treatment. In the study of epidemiological country-specific mathematical modelling of the HCV, was reported an estimated chronic HCV prevalence rate 0.7%, diagnosis rate 16% and treatment rate 0.8% in our country [5]. In this study, it was aimed to evaluate the patients whose HCV serology was investigated in our hospital between 2010-2018. The patients who have positive HCV RNA test with anti-HCV test and without having HCV RNA test result were identified and attempt to reach by phone for the HCV treatment.

Materials and Methods

In this study, we evaluated 56.115 patients who were admitted to Afyon Kocatepe University, Faculty of Medicine, Turkey, between 2010-2018 years for any reasons were examined for anti-HCV tests retrospectively after approval of the local Ethics Committee (2011-KAEK-2).

Data Collection

The anti-HCV test results were obtained from electronic recording system of hospital. The patients younger than 18 years old and recurrent tests on the same patients were excluded. The patients were evaluated for age, gender, presence of HCV-RNA tests and

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treatment planning. The distribution of the departments were analysed. The patients who have positive HCV RNA test with anti-HCV test and without having HCV RNA test result were attempt to reached by phone. The awareness and knowledge of patients about their hepatitis C follow-up or treatment were evaluated. The patients were given information about the HCV infection, and they were told that they should apply to a health institution for treatment, and to be followed up.

Determination of the HCV and anti-HCV gene expressions with the real-time polymerase chain reaction

Anti-HCV to be studied from patient serum was investigated with the Elecsys® Anti-HCV II kit (Roche Diagnostics, Mannheim, Germany) based on the electrochemiluminescent enzyme immunoassay (EIA) method using the Roche Cobas e601 (Roche Diagnostics, Switzerland) device. Samples with <1S/CO value are considered non-reactive, while samples with ≥1S/CO value are considered reactive. Peripheral blood samples approximately 2 ml of taken from the patients was taken into tubes with EDTA. RNA isolation was performed using the COBAS® 4800 System Sample Preparation kit (Roche Diagnostics, Mannheim, Germany) according to the manufacturer's recommendations. HCV RNA viral load assessment was analysed with the fully automated Cobas z 480 RT- PCR instrument (Roche Diagnostic Ltd., Rotkreuz, Switzerland). The lower limit of quantitation of the test for HCV RNA is 15 IU/ml and its linear range is 15-1x108 IU/ml.

Statistical analysis

The data were statistically analysed using SPSS 20.0 (Statistical Package for the Social Sciences) statistics program. Descriptive analysis was used to identify patients with HCV RNA testing.

Results

Anti-HCV assays were performed for total 56,115 patients in our hospital between 2010-2018. In the 708 (1.3%) patients was detected anti-HCV positivity. A total of 708 patients (Female, n=415;58.6%, and male, n=293;41.4%) with a mean age of 63 years were included in the study. The anti-HCV tests and HCV RNA tests were requested in the different departments. The distribution rates of the requesting HCV RNA test in anti-HCV positive patients in departments were: 41.8% in infectious department, 39.4% in internal department 18.8% in surgery department (Table 1). HCV RNA test was found to be positive in 324(45.8%) and negative in 163 (23.0%) patients. HCV RNA was not tested in 221 (31.2%) patients who were anti-HCV positivity (Figure 1). The patients who have positive HCV RNA test with anti-HCV test were attempt to contact. Among 324 patients 31 of them were above 70 years. Among the others 87 of them had died and 141 of them had treated in our hospital. We phoned 65 patients. Among 65 patients 28 of them could not reach by phone, 12 of them did not apply to the hospital for HCV treatment, 14 of them were being treated in another center, and 11 of them were treated in our hospital (Figure 2). The patients who were not tested for HCV RNA were attempt to contact. Among 221 patients 46 of them were above 70 years, 101 of them had died. We phoned 74 patients. Among 74 patients 24 of them could not reach by phone, 27 of them did not apply to the hospital for HCV treatment, 16 of them were being treated in another center and 7 of them were treated in our hospital (Figure 3).

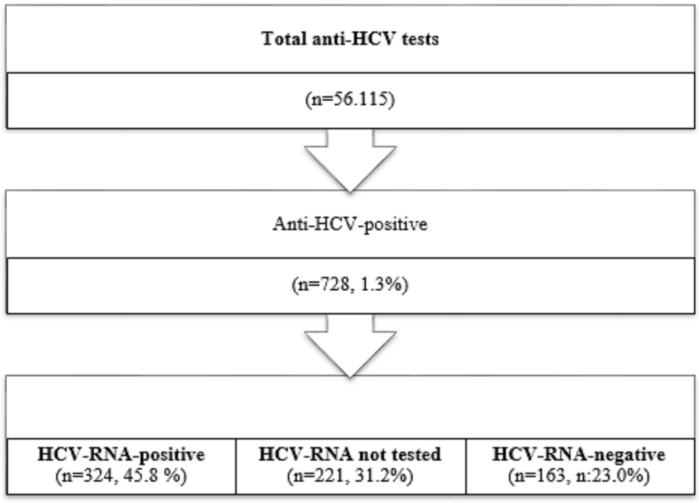

Figure 1. The classification of HCV infected patients

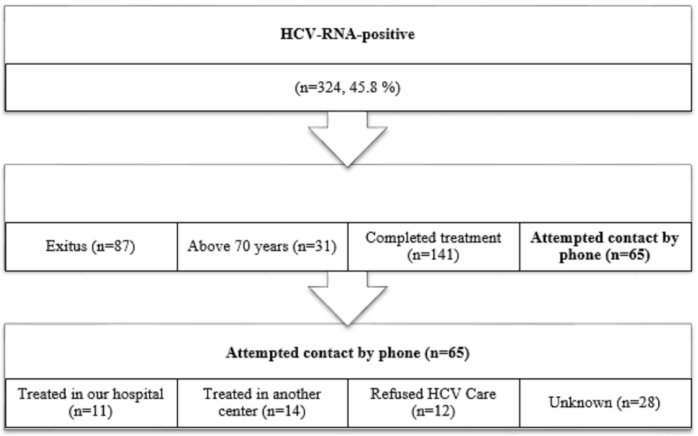

Figure 2. Documentation of potential treatment candidates who were HCV-RNA-positive

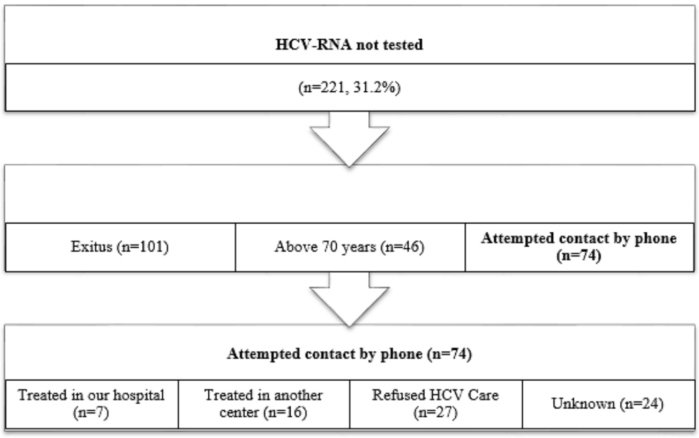

Figure 3. Documentation of potential treatment candidates who were not tested for HCV-RNA

Table 1. Distribution rates of the requesting HCV RNA test in anti-HCV-positive patients in departments

Departments	HCV-RNA-positive	HCV RNA not tested	HCV-RNA-negative
Internal Departments	18.6 % (n:132)	14.1% (n:100)	6.6% (n:47)
Surgical Departments	0.7 % (n:5)	14.8% (n:105)	3.2% (n:23)
Infection Departments	26.4% (n:187)	2.3% (n:16)	13.1% (n:93)
Total	45.8% (n:324)	31.2% (n:221)	23% (n:163)

Discussion

Chronic hepatitis C (CHC) is a major cause of progressive cirrhosis, liver fibrosis and hepatocellular carcinoma (HCC) [5]. There is currently no effective vaccine against HCV infection. The last years have seen progressive improvements in HCV treatment. There are highly effective direct acting antiviral drugs that are now available to cure HCV. The screening of HCV infection is important to identify and to treat individuals with active infection [6,7].

There are geographical variations in the extent of HCV infection. Epidemiological data in our country mostly taken from local studies. When we review the studies that conducted in this subject, in a study by Tozun et al. including 5.460 participants of 23 cities, anti-HCV test positivity was reported to be 1% [8]. In another study by Kaya et al., the rate of anti-HCV positivity was 1.2% [9]. In a study which was done by Yildirim et al. anti-HCV positive cases among 1095 patients was 23 (2.1%) [10]. Our study contributed to the literature for the Hepatitis C seroprevalance in Turkey. We found anti-HCV positivity 1.3% in our study.

The highest anti-HCV positivity rate was found in patients over 50 years of age [8,11]. Similarly, we found that the mean age of the patients was 63 years in our study. It may be associated with inadequate awareness among patients and physicians. Because of HCV infection is asymptomatic, it causes delays in diagnosis and treatment. There are many studies have shown that higher anti-HCV positivity in females [12-14]. In our study, anti-HCV positivity was higher in females than in males (58.6% and 41.4%).

Antiviral treatments can cure more than 95% of patients with HCV infection, but the rate of diagnosis and treatment is low. The less than 5% the people of with chronic hepatitis C infection in the worldwide are know their disease [15]. If the HCV infections are not treated, the rate of HCV infection and mortality are estimated to increase gradually in the next 20 years. The World Health Organization (WHO) adopted the elimination program to decrease in mortality by 65% and in the rate of new HCV infections by 90% by 2030 [16]. However, few countries are reported to have HCV elimination programs [17]. The patients who are not diagnosed and treated are the main sources of HCV transmission in the population. We can diagnose and cure a chronic HCV infection, so we should arrive as many infected persons as possible [18]. In 2017, a consensus report about diagnosis and treatment HCV were updated by the Study Group for Viral Hepatitis of the Turkish Society of Clinical Microbiology and Infectious Diseases [4].

Physicians should test HCV RNA together with the anti-HCV for the diagnosis of chronic HCV infection. Anti-HCV positive patients should be referred to a specialist for treatment. Awareness about HCV diagnosis and treatment among physicians has been evaluated in some studies. Kayar et al. determined that the physicians were insufficient in answering the questions on HCV screening [19]. A survey study reported that 44% of the Chinese nonspecialist physicians thought that anti-HCV positive patients do not need the further examination [20]. In the other study 28.5% patients were not referred to the related specialty department and thus not to the appropriate control, and treatment programs [21]. The distribution rates of the requesting HCV RNA test in anti-HCV positive patients differed between departments in our study. When we investigated the patient group (31.2%) who were anti-HCV positive without HCV RNA testing, we found that the percentage of overlooking HCV RNA was high in the internal and surgery departments according to the infection department. In a study similar to ours, Gulsen et al. have revealed that the awareness of surgeons and other clinicians about HCV was low [7]. The physician awareness should be increased by adding the cautions and information about HCV diagnosis and treatment to the hospital computer program [22]. A study from Argentina aimed improvement in physician knowledge and skills with new education programme [23]. Our study similarly found that the awareness of physicians about HCV infection is low.

The patients with HCV infection and no contraindications for treatment should be treated. However, treatment of patients who have non-liver-related comorbidities with limited life expectancy is not recommended [4]. HCV infection can be treated with the highly effective direct antiviral drugs. However, most of the HCV infected individuals are unaware of the treatment. Potent diagnostic approaches are necessary in order to increase early detection of HCV infection. The patients of HCV infected could be reach by using screening programme data and electronic health records [7].

Conclusion

In conclusion, we found that the awareness of physicians about HCV screening and treatment is low and the physicians should be awareness for the eradication of HCV infection. More effort should be needed for physician education. Education programs about HCV diagnosis and treatment for physicians should be performed. The hospital computer programmes for HCV diagnosis and treatment could be also beneficial.

Conflict of interests
The authors declare that there is no conflict of interest in the study.

Financial Disclosure
The authors declare that they have received no financial support for the study.

Ethical approval
Afyon Kocatepe University, Clinical Ethics Committe (2011/KAEK-2)

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