Hepatitis C virus (HCV): prevalence in a gynecological urgent care clinic population

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Objective: To determine the prevalence of hepatitis C virus (HCV) among women seeking urgent gynecological care.

Methods: Women were asked to complete a short self-assessment screening of HCV risk. Those answering yes to any of the screening questions were offered HCV testing and were asked to complete a more detailed questionnaire.

Results: Among the 125 women who completed the screening questionnaire, 80% (100) answered yes to one or more of the screening questions. Of the 99 women who underwent testing, six (6.1%) were HCV seropositive; a history of injection drug use was the only finding associated with HCV seropositivity (R.R 9.7: 95% CI 1.90–49.40).

Conclusions: Women seeking urgent outpatient gynecological care, particularly those who are injection drug users, are at a substantial risk of HCV infection. A careful risk assessment should be completed in order to identify women who should be offered HCV testing.

Key words: HEPATITIS C VIRUS

INTRODUCTION

Hepatitis C virus (HCV) is the most common blood-borne infection and is a leading cause of chronic liver disease in the USA¹. Because chronic HCV infection is often asymptomatic for long periods of time, many people are not aware that they are infected with HCV². The purpose of this study was to determine the prevalence of HCV infection among women seeking urgent gynecological care.

MATERIALS AND METHODS

This study was conducted at Grady Memorial Hospital, an inner city healthcare institution serving the metropolitan Atlanta area. From

November 2001 to April 2002, 7210 women patients presented at the Womens' Urgent Care Center for a broad range of emergent and urgent gynecological services. During this time period, English-speaking women presenting for non-emergent outpatient care were initially given an information sheet about HCV and a risk factor assessment questionnaire. The information sheet provided facts regarding infection, transmission, prevention, and treatment of HCV. The risk factor assessment questionnaire identified those women with a history of sexually transmitted disease, blood transfusion or organ transplant, injection drug use, high-risk sexual behavior, or hemodialysis. This screening process was based on guidelines published by the Centers for Disease Control and Prevention (CDC)².

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Any woman with one or more risk factors for HCV infection identified in the screening questionnaire was offered HCV testing and asked to complete a more detailed questionnaire. Written informed consent was obtained from all participants in this study and ethical approval for this study was obtained from the Human Investigations Committee at Emory University. HCV infection was determined by the use of a second-generation enzyme immunoassay (EIA, Abbott Laboratories, Abbott Park, IL, USA) to detect HCV antibodies.

Data analyses were performed with EpiInfo version 6.0 (Centers for Disease Control and Prevention, Atlanta, Georgia, USA). Unadjusted relative risks with 95% confidence intervals were calculated based upon HCV seropositivity and various potential risk factors including age, race, history of sexually transmitted disease, history of injection drug use, educational level, history of tattoos, and current living situation.

RESULTS

Among the 125 women who completed the risk factor assessment questionnaire, 80% (100) answered yes to one or more of the screening questions, indicating that they were at increased risk of HCV. Of the 100 women at risk of HCV infection, 67% admitted to a history of sexually transmitted disease and 54% reported a history of tattoos or body piercings.

Ninety-nine women were enrolled in the study and one woman was excluded due to an unsuccessful blood draw and subsequent inability to ascertain HCV status. The characteristics of the 99 women completing the study are shown in Table 1. Most of the participants were African-American women between the ages of 20 and 30 years. More than one-third of the women reported a history of each of the following sexually transmitted diseases: chlamydia, gonorrhea, and trichomoniasis. None of the patients reported that they were infected with human immunodeficiency virus (HIV). When asked by a multiple-choice question to identify the organ that HCV affects most, 79 (90.8%) of the 87 women who answered the question identified the liver as the correct answer. This was after the

Table 1 Characteristics of 99 study participants

Age (years)	
< 20	11 (11.1%)
21–30	61 (61.6%)
31–40	16 (16.2%)
> 40	11 (11.1%)
Race	
African-American	89 (89.9%)
White	6 (6.1%)
Other	4 (4.0%)
Education	
9 th Grade	20 (20.2%)
12 th Grade	61 (61.6%)
Associate/bachelor's degree	11 (11.1%)
Graduate degree	2 (2.0%)
Other	5 (5.1%)
Living situation	
Apartment	50 (50.1%)
House	38 (38.3%)
Other	11 (11.1%)
Sexually transmitted disease history	
Chlamydia	38 (38.3%)
Gonorrhea	35 (35.3%)
Trichomoniasis	34 (34.3%)
Syphilis	6 (6.1%)
Herpes simplex virus	2 (2.0%)
More than one STD	33 (33.3%)
Drug use history	
Marijuana	47 (47.4%)
Cocaine/crack	15 (15.2%)
Injection drugs	2 (2.0%)
History of one or more tattoos	
Yes	53 (53.5%)
No	46 (46.5%)
History of blood transfusion	
Yes	3 (3.0%)
No	96 (97.0%)
Answers to 'which organ does HCV affect?'	
Liver	79 (90.8%)
Lungs	4 (4.6%)
Kidneys	2 (2.3%)
Heart	1 (1.1%)
Brain	1 (1.1%)

women had been given an information sheet about HCV as part of the screening process.

Of the 99 women tested for HCV infection, six women were found to be HCV positive, resulting in a prevalence of 6.1%. If it were assumed that all women who did not report a risk

factor, and were therefore not offered enrollment, were HCV negative, the prevalence of HCV infection would then be 4.8%. Of the six HCV positive women, four were seen in the Gastroenterology Clinic at Grady Memorial Hospital for follow-up. These four women were evaluated for treatment options and each was counseled regarding the avoidance of alcohol and other potential liver toxins. Two women did not keep appointments at the Gastroenterology Clinic and no follow-up was obtained.

Potential predictors of HCV seropositivity were evaluated, these factors included: those aged less than 25 years; those of African-American race; those with educational levels to less than 12th grade; those with living situations other than an apartment or house; those with a history of tattoos; those with a history of sexually transmitted disease; and those with a history of injection drug use. Relative risks with 95% confidence intervals were calculated (Table 2). The only significant risk factor that we identified was a history of injection drug use (RR 9.7; 95% CI 1.90–49.40).

DISCUSSION

The estimated prevalence of HCV in this population of women seeking urgent gynecological care at Grady was 4.8–6.1%. This is substantially higher than estimates of HCV prevalence among the general population. A recent national seroprevalence study of approximately 20 000 people in the USA found that the overall prevalence of HCV infection was 1.8%³. Even among high-risk pregnant women, sero-

prevalence rates of 1–2% have been found. For example, among a fairly high-risk population of pregnant women at Parkland Hospital (i.e. pregnant women cared for at Parkland Hospital have a high incidence of risk factors for transmission of infectious diseases), the seroprevalence rate of HCV antibody was 2.3%⁴. Similarly, a population-based sample of 1700 women residing in low-income neighborhoods in northern California found an HCV seroprevalence rate of 2.5%⁵.

Our study confirmed that injection drug use is a primary risk factor for hepatitis C infection, as has been found in previous studies^{3,6}. Although our study did not show significant associations between high-risk sexual behavior and HCV seropositivity, it was noted that high-risk sexual behavior was the most common risk factor, as demonstrated in the initial risk factor assessment. In the CDC's sentinel surveillance system, 15–20% of patients with acute HCV have a history of sexual exposure in the absence of other risk factors².

The major limitation to our study was the small number of women tested; therefore precise and stable estimates of seroprevalence could not be calculated. In addition, the participants represent a convenience sample and therefore it is unknown whether the women who were screened are representative of the overall population of women seeking urgent care at Grady. In our study women without an identified risk factor were not tested. Moreover, non-English speaking women were excluded due to the inability to properly complete the questionnaires and for obtaining informed consent.

Table 2 Unadjusted relative risks between hepatitis C seropositivity and various risk factors

	No. HCV positive	Value	95% Confidence interval
Age < 25 years	1	0.19	0.02–1.55
History of STD	5	1.51	0.19–12.30
African-American race	5	0.56	0.07–4.34
History of injection drug use	1	9.70	1.90–49.4
History of tattoo	1	0.17	0.02–1.43
Education < 12 th Grade	1	0.79	0.10–6.39
Living situation other than home/apt.	0	0	

Overall, HCV infection is a widespread public health issue throughout the world, and the substantial number of infected persons and HCV-related deaths continues to bring this disease to the forefront. Our recommendation is that a careful HCV risk factor assessment be performed for all of our patients, and individuals at risk should be counseled and offered testing for HCV. Like many other infectious diseases in obstetrics and gynecology, HCV is probably an

important source of morbidity in our patient population, and increased attention should be focused on appropriate screening and prevention.

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