

Research Article

Prevalence of Colorectal Polyps in Patients with Chronic Hepatitis C Virus Infection in a Multi-Ethnic Hospital Population

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Received: July 07, 2020; Accepted: July 17, 2020; Published: July 24, 2020

Abstract

Chronic hepatitis C virus infection has been associated with pre-cancerous colorectal lesions; however, there are limited data regarding the prevalence of Colorectal Polyps (CRP) in patients with Chronic Viral Hepatitis C (C-HCV). Accordingly, we conducted a retrospective study to explore this potential association by the review of an endoscopy database that included 1928 charts of adult patients who had undergone colonoscopies, and that revealed a higher prevalence of CRP in individuals with C-HCV, 67.1%, than in those without, 51.3%, ($p=0.001$). Hyperplastic polyps comprised 56.8%, and tubular adenomata 36.5% of the polyps reported. In addition, there was a preponderance of C-HCV in subjects of Hispanic ethnicity, men, and individuals who had a history of smoking and alcohol use. The most common hepatitis C virus genotype was 1a, 62%. The prevalence of CRP in patients with C-HCV was higher than in those without; however, there was no significant association between C-HCV and adenomatous polyps, which suggests that C-HCV does not predispose to colorectal cancer.

Background

Chronic hepatitis C (C-HCV) is an important public health concern; thus, the impact of this viral infection on other comorbidities is of interest. Colorectal Polyps (CRP) are common gastrointestinal lesions but there are limited data regarding their prevalence in patients with C-HCV.

As C-HCV has been associated with malignancy [1-6], we hypothesized that CRPs would be more common in patients with C-HCV than in those without. Accordingly, the aim of this study was to explore that prevalence of CRPs, which can develop into colorectal cancer, in patients with C-HCV who had had a screening colonoscopy at H+H, Metropolitan, a community hospital that serves the multiethnic population of East Harlem.

Methods

Data from records of 1,928 patients who had a complete colonoscopy report in the database from the Division of Gastroenterology and Hepatobiliary Diseases from January 1st, 2011 to December 31st, 2015 were retrospectively reviewed. The study group was comprised of adults with C-HCV, defined as detected HCV RNA in serum, who had undergone a complete screening or diagnostic colonoscopy after a good bowel preparation confirmed during the procedure. The control group was composed of patients who underwent a screening colonoscopy and who did not have antibodies for the hepatitis C virus.

In addition, we examined some of the characteristics of the population such as ethnicity, gender, and toxic habits to explore potential associations with C-HCV. Correlations between categorical variables were analyzed by the use of Chi-square test, and t-test for continuous variables between groups. Bivariate analysis was applied to identify any links between the exposure variable and the outcome variable. A p value of < 0.05 was considered significant. Statistical analysis was performed with SPSS 24 software. This study was approved by the Biomedical Research Alliance of New York (BRANY).

Results

Among 1928 individuals with complete colonoscopies, we identified 960 patients who had been tested for hepatitis C virus infection, of whom 159 had C-HCV. Gender was the only factor that was significantly different in the C-HCV group versus the control, with the majority, 65%, being men ($p<0.001$) (Figure 1). Fifty-three percent of the patients with C-HCV self-identified as Hispanics. In addition, 34% and 38% of the patients in the HCV infected group reported an active/former smoker status or admitted being at least a social alcohol consumer, respectively.

There was a higher prevalence of CRP in individuals with C-HCV, 67.1%, in comparison with those without, 51.3% ($p=0.001$). Hyperplastic polyps comprised 56.8% of the polyps and tubular adenomata, 36%. Hyperplastic was the histopathologic predominant type in patients with C-HCV, 75%, and in the control group, 69%;

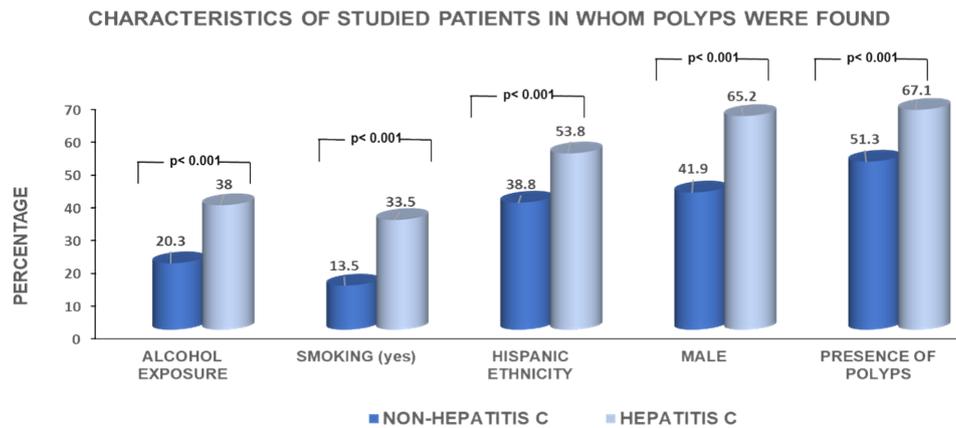


Figure 1: Complete colonoscopies among 1928 individuals.

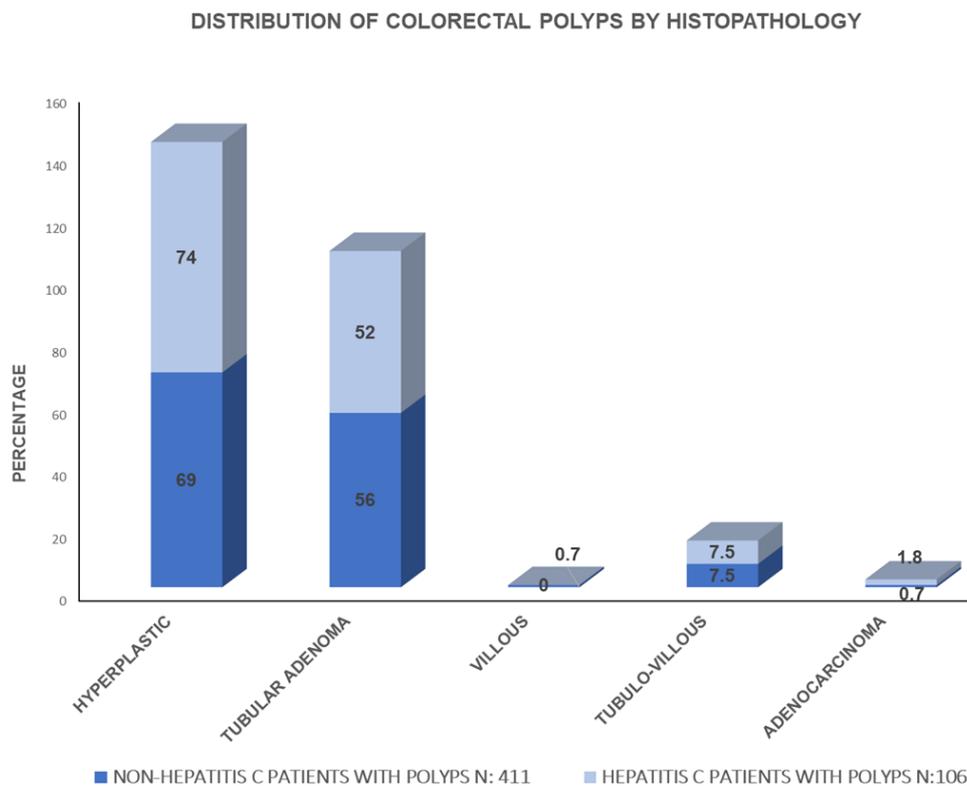


Figure 2: Distribution of colorectal polyps by histopathology.

however, this difference was statistically significant ($p < 0.005$) (Figure 2). Most patients with C-HCV, 62%, had genotype 1a.

Discussion

In this study, the prevalence of CRP in patients with C-HCV was higher than in those without. The predominant histology of the CRP was hyperplastic. There was a preponderance of C-HCV in men, in smokers, in those who used alcohol, and in subjects of Hispanic ethnicity, consistent with the ethnicity of the majority of patients attended at Metropolitan Hospital.

Colorectal cancer has been associated with C-HCV [7]; however, we excluded from this study patients with history or active colorectal

cancer. CRP were more prevalent in the C-HCV group of patients with a predominance of hyperplastic histology [8-44]. Hyperplastic Polyps (HP) are included in the serrated polyp classification [45-50], which encompasses Sessile Serrated Lesions (SSL) and Traditional Serrated Adenomas (TSA). SSL and TSA have been associated with malignancy; however, none of the polyps found in this study had a serrated histology.

The HCV virus itself may stimulate cell proliferation, inflammation and apoptosis increasing the risk of polyp formation [26-29]. The hepatitis C virus has been found in colonic cells such as lymphocytes, macrophages, monocytes [6,8-15]. As polyps possibly result from a defective/enhanced repair process after a mucosal injury [26], and

mutations seem to be the molecular events leading to polyp's formation, we may speculate that the presence of viral RNA in the colonic mucosal cells may also cause some disruption in this process [51-78].

53% and 38% of the patients with C-HCV reported active or former smoker status or admitted being at least a social alcohol consumer. Cigarette smoking has been associated with an increased in progression of liver disease in patients with C-HCV [20]. In this study, data were recorded as current smokers and former smokers while the Nonsmokers (NS) were those who stated have never smoked. This group was comprised of 34% of the patients with C-HCV versus 14% in the control group, a difference that was statistically significant ($p < 0.001$). This finding is consistent with a prior report [18,19].

The association between alcohol use disorder and C-HCV has been described [23,24] Alcohol use was reported more frequently by the patients with C-HCV, 38% versus 20% in the control group ($p < 0.001$).

In summary, there was a preponderance of C-HCV, most commonly genotype 1a, among subjects of Hispanic ethnicity, men, and individuals who had a history of smoking and alcohol use. Hepatitis C virus infection is not associated with adenomatous colonic polyps, and thus, it does not predispose by itself to colorectal cancer.

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