Patients undergoing coronary angiography because of chest pain with hepatitis C virus seropositivity have a higher prevalence of obstructive coronary artery disease than a control group

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Abstract

Introduction: The aim of the study was the relationship between hepatitis c virus and coronary disease needed investigation.
Material and methods: The patients included 31 men and 5 women, mean age 53±9 years, seropositive for hepatitis C virus and 31 men and 5 women, mean age 53±9 years, seronegative for hepatitis C virus undergoing coronary angiography because of chest pain.
Results: Coronary risk factors were not significantly different between the 2 groups. Obstructive coronary artery disease (CAD) (>50% obstruction of at least 1 major coronary artery) was present in 32 of 36 patients (89%) seropositive for hepatitis C virus and in 21 of 36 patients (58%) seronegative for hepatitis C virus ($P<0.005$). 3-vessel obstructive CAD was present in 9 of 36 patients (25%) seropositive for hepatitis C virus and in 2 of 36 patients (6%) seronegative for hepatitis C virus ($P<0.025$). 2-vessel or 3-vessel obstructive CAD was present in 21 of 36 patients (58%) seropositive for hepatitis C virus and in 9 of 36 patients (25%) seronegative for hepatitis C virus ($P<0.005$).
Conclusions: In conclusion, patients undergoing coronary angiography for chest pain have a significantly higher prevalence of obstructive CAD, of obstructive 3-vessel CAD, and of obstructive 2-vessel or 3-vessel CAD if they are seropositive for hepatitis C virus than if they are seronegative for hepatitis C virus.

Key words: coronary artery disease, coronary angiography, hepatitis C virus.

Introduction

Vassalle et al. [1] reported in a Letter to the Editor that there was an association between hepatitis C virus seropositivity and coronary artery disease (CAD). Momiyama et al. [2] reported in a Letter to the Editor that hepatitis C virus was present in 3.4% of Japanese patients with CAD and in 2.8% of a control group (P not significant). The prevalence of hepatitis C virus seropositivity tended to increase with a greater number of coronary arteries with CAD [2].

We are reporting the prevalence of 1-vessel obstructive CAD, of 2-vessel obstructive CAD, of 3-vessel obstructive CAD, of 1, 2, or 3-vessel obstructive CAD, and of 2 or 3-vessel obstructive CAD in 36 patients seropositive for hepatitis C virus and in 36 age-matched and sex-matched patients with similar coronary risk factors seronegative for

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hepatitis C virus undergoing coronary angiography because of chest pain.

Material and methods

In a prospective study, 36 patients (31 men and 5 women), mean age 53±9 years, seropositive for hepatitis C virus and a control group of 36 patients (31 men and 5 women), mean age 53±9 years, seronegative for hepatitis C virus with similar coronary risk factors underwent coronary angiography because of chest pain. Cardiovascular drug therapy was not significantly different between the 2 groups. None of the patients in either group had prior coronary artery bypass surgery or percutaneous coronary intervention or underwent previous investigation for chest pain. The only significant difference between the 2 groups was the presence or absence of seropositivity for hepatitis C virus. Obstructive CAD was diagnosed if there was >50% obstruction of at least 1 major coronary artery [3].

Table I. Prevalence of coronary risk factors in 36 patients with hepatitis C virus seropositivity and in 36 age-matched and sex-matched patients with hepatitis C virus seronegativity undergoing coronary angiography because of chest pain

Coronary risk factor	Hepatitis C virus positive (n=36) [%]	Control group (n=36) [%]
Smoking	50	44
Hypertension	75	75
Diabetes mellitus	42	39
Dyslipidemia	83	78
Body mass index ≥30 kg/m^2	42	44

No significant differences are present

Table II. Prevalence of obstructive coronary artery disease in 36 patients with hepatitis C virus seropositivity and in 36 age-matched and sex-matched patients with hepatitis C virus seronegativity undergoing coronary angiography because of chest pain

No. major coronary arteries with >50% obstruction	Hepatitis C virus positive (n=36) No. [%]	Control group (n=36) No. [%]	P value
1	11 (31)	12 (33)	NS
2	12 (33)	7 (19)	NS
3	9 (25)	2 (6)	<0.025
1, 2, or 3	32 (89)	21 (58)	<0.005
2 or 3	21 (58)	9 (25)	<0.005

NS – not significant

Student's t tests were used to analyze continuous variables. Chi-square tests were used to analyze dichotomous variables.

This study was approved by the New York Medical College Institutional Review Board and by the Institutional Review Board of Westchester Medical Center.

Results

Table I shows the prevalence of coronary risk factors in 36 patients with hepatitis C virus seropositivity and in 36 age-matched and sex-matched patients with hepatitis C virus seronegativity undergoing coronary angiography because of chest pain. No significant differences were observed between the 2 groups.

Table II shows the prevalence of obstructive CAD and the number of major coronary arteries with obstructive CAD in 36 patients with hepatitis C virus seropositivity and in 36 age-matched and sex-matched patients with hepatitis C virus seronegativity undergoing coronary angiography because of chest pain. Table II also shows the levels of statistical significance.

Discussion

Vassalle et al. [1] reported that the prevalence of hepatitis C seropositivity was 6.3% in patients with CAD vs. 2.0% in a control group (P<0.05). However, Momiyama et al. [2] reported that hepatitis C virus was present in 3.4% of Japanese patients with CAD and in 2.8% of a control group (P not significant). The prevalence of hepatitis C virus seropositivity tended to increase with a greater number of coronary arteries with CAD and was 2.9% in patients with 1-vessel CAD, 3.6% in patients with 2-vessel CAD, and 4.1% in patients with 3-vessel CAD [2].

To the best of our knowledge, the present study is the only prospective study investigating the prevalence of obstructive CAD in patients undergoing coronary angiography for chest pain who were seropositive or seronegative for hepatitis C virus. Both groups were similar for age, gender, coronary risk factors, and use of cardiovascular drugs. This prospective study showed that patients seropositive for hepatitis C virus with similar coronary risk factors as an age-matched and sex-matched control group undergoing coronary angiography because of chest pain had a significantly higher prevalence of obstructive CAD than the control group (89 vs. 58%, P<0.005). The present study also found that obstructive 2-vessel or 3-vessel CAD was present in 58% of patients seropositive for hepatitis C virus and in 25% of patients seronegatve for hepatitis C virus (P<0.005).

Navindra Ramdeen, Wilbert S. Aronow, Savneek Chugh, Amit Asija

Inflammation is recognized to be involved in the pathogenesis of atherosclerosis [4, 5]. Whether inflammation is contributing to obstructive CAD in patients seropositive for hepatitis C virus is unknown. Further studies are indicated to investigate the relationship between hepatitis C virus and obstructive CAD including markers of inflammation.

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