



THE INFLUENCE OF SMOKING AND GENDER ON RELAPSE RATES IN CROHN'S DISEASE PATIENTS

Microbiology

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ABSTRACT

Crohn's disease (CD) is a chronic inflammatory condition of the gastrointestinal tract with fluctuating periods of relapse and remission. Identifying factors that influence relapse rates is crucial for managing and improving patient outcomes. Previous studies have suggested that smoking and gender may impact the course of the disease. This study investigates the relationship between smoking status, gender, and relapse rates in a cohort of CD patients. This study aims to evaluate the influence of smoking and gender on relapse rates in patients with Crohn's disease. A cohort of 16 patients was analysed, with a mean age of 53.56 years (SD = 6.79). Relapse rates were examined in relation to smoking status and gender. The findings indicate that both smoking and male gender are associated with higher relapse rates. These results suggest the need for targeted interventions to reduce relapse risks among smokers and male patients with Crohn's disease.

KEYWORDS

Crohn's disease (CD), Ulcerative Colitis (UC), Oral contraceptives (OC), Postmenopausal hormone replacement therapy (HRT),

INTRODUCTION

The gender-specific distributions of Crohn's disease (CD) and ulcerative colitis (UC) depend, among other things, on ethnicity. Although women in Europe and the USA are affected approximately twice as often as men by Crohn's disease, in Asia more men are affected than women. In UC, there is no difference in incidence related to sex, nor between continents (1).

A recently published study representing 16 regions in Europe, North America, Australia, and New Zealand revealed an interesting relationship between age and sex in IBD epidemiology: Women had a lower risk of CD in childhood up to the age of 10–14 years (2).

Somewhat surprising is the high proportion of women with Crohn's disease who smoke, which is significantly higher than that of men (3,4).

Epidemiological studies have shown that the use of hormones such as oral contraceptives (OC) or postmenopausal hormone replacement therapy (HRT) in women is associated with the occurrence of IBD and complicative courses (5)

A meta-analysis by Ortizo et al. found that OC users had a 24% and 30% higher risk of developing CD and UC, respectively (6)

Tobacco smoke has also been shown to modify the association of certain genetic variants with risk of developing Crohn disease and UC (7)

Since then, a large number of epidemiological studies described the dual effect of (active) smoking: it is associated with a higher risk for developing Crohn's disease (CD) and a worse outcome in CD patients, whereas ulcerative colitis (UC) is primarily a disease of non-smokers and smoking and nicotine are assumed to play a protective role in UC (8)

inflammatory bowel disease (IBD) encompasses many chronic gastrointestinal diseases, including Ulcerative Colitis (UC) and Crohn's Disease (CD) (9)

Cigarette smoke (CS) is considered an independent risk factor in the development of Crohn's disease (CD). It is associated with exacerbated inflammatory relapses, postoperative recurrence, and poorer response to medical therapy (10)

A standard clinical practice for newly diagnosed CD patients is to quit CS to avoid the aforementioned debilitating consequences (11,12)

Generally, CS causes CD smokers to suffer from exacerbated inflammatory symptoms, severe phenotypical presentation of the disease, and in many cases leads to the patient's hospitalization and poor long-term prognosis (13,)

Inflammatory symptoms in UC are significantly decreased when tobacco is consumed, while smoking cessation results in abrupt flares of inflammation and more frequent relapsing episodes in these patients (14)

Inflammatory bowel disease (IBD) encompasses many chronic gastrointestinal diseases, including Ulcerative Colitis (UC) and Crohn's Disease (CD) (15)

Although the prevalence of IBD appears to be flattening in Western Europe and North America, at around 0.3%, limited data indicates that IBD is increasing in low and middle-income countries (16)

In the Middle East and North Africa (MENA), the prevalence of IBD is largely unknown and data about possible risk factors of IBD are also scarce. However, findings, mostly pertaining to UC, from a few countries suggest a rising incidence of IBD in the region (17,18)

CD and UC are multifactorial diseases whose causes are not

completely understood. Research suggests that these diseases may result from the interplay between genetic susceptibility, innate and adaptive immunity, dysbiosis, and environmental factors.(19)

However, the contribution of each of these factors is still unknown. Recent research also suggests that the effects of some of these risk factors on the risk of UC and CD, especially smoking, may differ between populations and between genders. (20)

Cigarette smoking

Smoking is an important environmental factor in inflammatory bowel disease (IBD), having different effects in ulcerative colitis (UC) and Crohn's disease (CD). Cigarette smoking is associated with an increased risk of complications through increased inflammation in CD, whereas the opposite is seen in UC with a more benign course of established disease. Cigarette smoke (CS) exacerbates symptoms in Crohn's disease (CD) patients while protecting those with ulcerative colitis (UC). CD has been associated with immuno-dysregulation, mucosal dysfunction, and infection. Smoking is a crucial environmental factor in inflammatory bowel disease [IBD]

The Influence of Gender on Relapse Rates in Crohn's Disease Patients

Female-specific differences influence disease presentation and activity, leading to a different progression between males and females. Women show a genetic predisposition to develop inflammatory bowel disease related to the X chromosome. Female hormone fluctuation influences gastrointestinal symptoms, pain perception, and the state of active disease at the time of conception could negatively affect the pregnancy. Women with inflammatory bowel disease report a worse quality of life, higher psychological distress, and reduced sexual activity than male patients. (21)

METHODS

Study Population

A total of 16 patients diagnosed with Crohn's disease were included in this study. The mean age of the patients was 53.56 years, with a standard deviation of 6.79 years. The age range spanned from 36 to 65 years.

Data Collection

Data on relapse rates, smoking status, and gender were collected. Relapse was defined based on clinical symptoms and/or endoscopic findings. Smoking status was categorized as "yes" or "no." Gender was classified as "male" or "female."

Statistical Analysis

Descriptive statistics were used to summarize the data. The relationships between relapse rates and smoking status, as well as gender, were analysed using contingency tables.

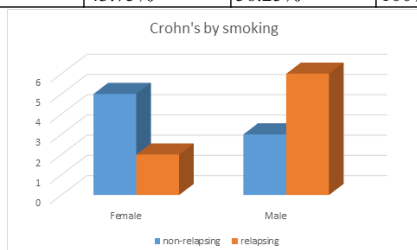
RESULTS

Patient Demographics

The mean age of the cohort was 53.56 years (SD = 6.79), with ages ranging from 36 to 65 years. Relapse and Smoking Status. Table 1 presents the distribution of relapse rates according to smoking status.

Table 1: Relapse by Smoking Status

Table of relapse by gender			
Relapse	gender		
	Female	Male	Total
No	5 31.25%	3 18.75%	8 50%
Yes	2 12.50%	6 37.50%	8 50%
Total	7 43.75%	9 56.25%	16 100%



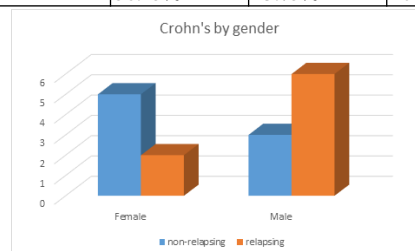
Among the 16 patients, 8 (50%) experienced a relapse. Of those who relapsed, 5 (31.25%) were smokers and 3 (18.75%) were non-smokers. Conversely, of the patients who did not relapse, 4 (25.00%) were smokers and 4 (25.00%) were non-smokers. The total proportion of smokers in the cohort was 56.25%, while non-smokers comprised 43.75%.

Relapse and Gender

Table 2 shows the distribution of relapse rates by gender.

Table 2: Relapse by Gender

Table of relapse by Smoking			
Relapsing	Smoking		
	Yes	No	Total
No	4 25%	4 25%	8 50%
Yes	5 31.25%	3 18.75%	8 50%
Total	9 56.25%	7 43.75%	16 100%



Of the 16 patients, 8 (50%) experienced a relapse. Among those who relapsed, 2 (12.50%) were female and 6 (37.50%) were male. Among the patients who did not relapse, 5 (31.25%) were female and 3 (18.75%) were male. The total proportion of females in the cohort was 43.75%, while males comprised 56.25%.

DISCUSSION

This study found that smoking and male gender are associated with higher relapse rates in patients with Crohn's disease. Specifically, a greater proportion of smokers (31.25%) and males (37.50%) experienced relapse compared to non-smokers (18.75%) and females (12.50%). These findings are consistent with previous research indicating that smoking exacerbates the course of Crohn's disease and that males may be more susceptible to severe disease forms.

Smoking and Crohn's Disease

Smoking has been identified as a risk factor for the development and exacerbation of Crohn's disease. It is believed that smoking alters immune responses and gut microbiota, contributing to increased inflammation and disease activity. The higher relapse rate among smokers in this study underscores the need for smoking cessation programs tailored for Crohn's disease patients.

Gender and Crohn's Disease

Gender differences in Crohn's disease have been reported, with males often experiencing more severe disease manifestations. Hormonal influences and genetic factors may contribute to these differences. The higher relapse rate among males in this study highlights the importance of considering gender-specific strategies in the management of Crohn's disease.

CONCLUSION

This study demonstrates that smoking and male gender are associated with higher relapse rates in Crohn's disease patients. These findings highlight the need for targeted interventions, including smoking cessation programs and gender-specific management strategies, to reduce relapse risks and improve patient outcomes. Further research with larger sample sizes is warranted to confirm these findings and elucidate the underlying mechanisms.

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