

Is There any Significant Association Between Irritable Bowel Syndrome and Cholelithiasis ?

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Abstract

Background: We tried to understand whether or not there is a significant etiopathogenetic relationship between irritable bowel syndrome (IBS) and cholelithiasis.

Methods: Consecutive patients with upper abdominal discomfort were included into the study. Routine hematologic and biochemical tests, an abdominal ultrasonography, and a questionnaire for IBS was performed in all cases, and IBS is diagnosed according to Rome II criteria in the absence of red flag symptoms. Cholelithiasis cases were put into one group and age and sex-matched and randomly selected cases without cholelithiasis were put into the other group. Prevalences of smoking, normal weight, overweight, obesity, and IBS were detected in each group and compared in between. Results: One hundred and twenty-one patients with cholelithiasis were diagnosed. Ninety-seven (80.1%) of them were female, and their mean age was 53.4 ± 9.9 (27-70) years. Interestingly, 92.5% (112 cases) of the cholelithiasis cases had excess weight and obesity was significantly higher in the cholelithiasis group (54.5% vs. 43.8%, $p < 0.05$). Prevalence of IBS was nearly equal in both groups (43.8% in cholelithiasis vs. 42.1% in control cases, $p > 0.05$).

Conclusions: IBS probably is a cascade of many physiological events, being initiated with infection, inflammation, psychological disturbances-like stresses and eventually terminated with dysfunctions of genitourinary tract and probably some other systems of body via a low-grade inflammatory process. Although IBS probably has a much more complex mechanism than the current view and a higher prevalence in society, there is not a significant association between IBS and cholelithiasis.

Keywords: Irritable bowel syndrome, cholelithiasis, obesity

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SPASTİK KOLON İLE SAFRA TAŞI ARASINDA İSTATİSTİKSEL OLARAK ANLAMLI BİR İLİŞKİ VAR MIDIR ?

Özet

Amaç: Spastik kolon ile safra taşı arasında altta yatan sebepler açısından istatistiksel olarak anlamlı bir ilişkinin mevcut olup olmadığını anlamaya çalıştık.

Metodlar: Üst karın rahatsızlığı nedeniyle ardi sıra başvuran hastalar çalışmaya alındı. Rutin hematolojik ve biyokimyasal testler, karın ultrasonografisi ve spastik kolon için bir anket tüm hastara uygulandı ve spastik kolon tanısı, başka önemli patolojilerin göstergesi olabilecek ciddi semtomların yokluğunda Roma II kriterlerine göre konuldu. Safra taşı vakaları bir gruba, yaş ve cinsiyet uyumlu, rastgele seçilen ve safra taşı olmayan vakalar diğer gruba konuldu. Sigara, normal kilo, fazla kilo, obezite ve spastik kolon prevalansları her iki grupta tespit edilip birbirleri ile karşılaştırıldı.

Bulgular: Yüzyirmibir safra taşı hastası tespit edildi. Bunların 97'si (%80.1) bayandı ve ortalama yaşları 53.4 ± 9.9 (27-70) sene olarak tespit edildi. İlgili çekici bir bulgu olarak safra taşı vakalarının %92.5'i (112 hasta) fazla kilolu veya obezdi ve obezite prevalansı safra taşı grubunda anlamlı olarak yüksekti (%54.5'e karşılık %43.8, $p < 0.05$). Spastik kolon prevalansı her iki grupta benzerdi (safra taşı hastalarındaki %43.8'e karşılık kontrol grubunda ki %42.1, $p > 0.05$).

Sonuç: Spastik kolon muhtemelen enfeksiyon, enflamasyon, psikolojik problemler benzeri stresler ile başlayıp düşük dereceli bir enflamatuvar süreç ile genitouriner sistem ve muhtemelen diğer bazı vücut sistemlerinin disfonksiyonu ile sonlanan bir fizyolojik olaylar şelalesidir. Hernekadar spastik kolon muhtemelen günümüzde görüldüğünden daha karmaşık bir mekanizmaya sahipse ve toplumda yüksek bir prevalansa sahipse de, safra taşı ile arasında istatistiksel olarak anlamlı bir ilişki mevcut değildir.

Anahtar kelimeler: Spastik kolon, safra taşı, obezite

Introduction

When we specifically asked, about one third of people report recurrent upper abdominal discomfort, and one of most frequent applications to primary health center and emergency services are due to this complaint⁽¹⁾. Irritable bowel syndrome (IBS), chronic gastritis, gastroesophageal reflux disease, esophagitis, duodenal and/or gastric ulcers, erosive gastritis and/or duodenitis, celiac disease, chronic pancreatitis, and malignancies are found among possible causes of this complaint. Flatulence, periods of diarrhea and/or constipation, repeated toilet visits due to urgent evacuation or early filling sensation, excessive straining, feeling of incomplete evacuation, frequency, urgency, reduced feeling of well being, and disturbed social life due to the gastrointestinal and urinary tract symptoms are often reported by IBS patients. Although many patients relate onset of symptoms to intake of food and often incriminate specific food items, a meaningful dietary role in IBS is doubtful. On the other hand, cholelithiasis is a frequent pathology in society, too. We tried to understand whether or not there is a significant etiopathogenetic relationship between IBS and cholelithiasis in the present study.

Material and Methods

The study was performed in Emergency Service of the Mustafa Kemal University between March and December 2007. Consecutive patients with upper abdominal discomfort were included into the study. We took patients younger than 70 years to avoid debility induced weight loss in elders. Their medical histories including smoking habit were learnt, and current regular smokers at least for the last 6 months and cases with a previous smoking history of at least five pack-years were accepted as smokers, and cigar or pipe smokers were excluded. Insulin using diabetics and patients with devastating illnesses including malignancies, acute or chronic renal failure, chronic liver diseases, hyper- or hypothyroidism, and heart failure were excluded to avoid their possible effects on weight. Body mass index (BMI) of each case was calculated by measurements of the physicians in stead of verbal expressions. Weight in kilograms is divided by height in meters squared, and underweight is defined as a BMI of lower than 18.5, normal weight as 18.5-24.9, overweight as

25–29.9, and obesity as a BMI of 30.0 kg/m² or greater⁽²⁾. Routine hematologic and biochemical tests, an abdominal ultrasonography, and a questionnaire for IBS was performed in all cases, and IBS is diagnosed according to Rome II criteria in the absence of red flag symptoms, which are not typical for IBS, such as pain or diarrhea that often awakens/interferes with sleep, weight loss, fever, or abnormal physical examination findings. Eventually, all cases with cholelithiasis were put into one group and age and sex-matched and randomly selected cases without cholelithiasis were put in the other group. Prevalences of smoking, normal weight, overweight, obesity, and IBS were detected in each group and compared in between. Student t-test and paired samples t-test were used as the method of statistical analysis.

Results

One hundred and twenty-one patients with cholelithiasis were diagnosed. Ninety-seven (80.1%) of them were female, and their mean age was 53.4 ± 9.9 (27-70) years, so cholelithiasis is mainly a disorder of females in their fifties. Interestingly, 92.5% (112 cases) of the cholelithiasis cases had excess weight and only 7.4% (9 cases) had normal weight. There was not any patient in the cholelithiasis group with underweight. When we compared the cholelithiasis cases with the age and sex-matched cases without cholelithiasis, prevalence of IBS was nearly equal in both groups (43.8% vs. 42.1%, p>0.05) (Table 1). Twenty-two of the IBS cases in both groups were male and 82 of them were female, so difference between the sexes was statistically insignificant (45.8% vs. 42.2% respectively, p>0.05). Although prevalence of overweight was equal in both (38.0%), obesity was significantly higher in the cholelithiasis group (54.5% vs. 43.8%, p<0.05). On the other hand, prevalences of smoking were 17.3% (21 cases) in the cholelithiasis and 18.1% (22 cases) in the control groups, and difference between the groups was insignificant (p>0.05).

Discussion

According to literature⁽³⁾, approximately 10-20% of general population have IBS and it is more common among females for unexplained reasons. But actually we think it is a much more common pathology in society and seen with equal prevalences in

Table 1: Comparison of cases with and without cholelithiasis

Variable	Cases with cholelithiasis	Cases without cholelithiasis	p-value
Number	121	121	
Female ratio	80.1% (97)	80.1% (97)	
Mean age (year)	53.4 ± 9.9 (27-70)	53.4 ± 10.4 (28-70)	>0.05
Prevalence of smoking	17.3% (21)	18.1% (22)	>0.05
Prevalence of normal weight	7.4% (9)	18.1% (22)	<0.01
Prevalence of overweight	38.0% (46)	38.0% (46)	>0.05
Prevalence of obesity	54.5% (66)	43.8% (53)	<0.05
Prevalence of IBS*	43.8% (53)	42.1% (51)	>0.05

*Irritable bowel syndrome

both sexes. For example, its prevalence was 43.8% in the cholelithiasis and 42.1% in the control groups and it was seen with nearly equal prevalences in both sexes (45.8% in males vs. 42.2% in females, $p>0.05$) in the present study. Psychological factors seem to precede onset or exacerbation of gut symptoms, and many potentially psychiatric disorders such as anxiety, depression, and sleep disorders frequently coexist with IBS⁽⁴⁾. For example, thresholds for sensations of initial filling, evacuation, urgent evacuation, and utmost tolerance, recorded via a rectal balloon, significantly decreased by focusing the examiners' attention on gastrointestinal stimuli by reading pictures of malignant gastrointestinal disorders in IBS cases, however no remarkable change was observed in the other group⁽⁵⁾. So although IBS is described as a physical - not psychological - disorder according to Rome II guidelines, psychological factors may be crucial for triggering of the physical disorder, IBS.

Although underlying causes of pathophysiologic changes remain unclear, a low-grade inflammation and an abnormal intestinal motility are accepted mechanisms altering gut functions and generating symptoms⁽⁶⁾. According to the Rome II criteria, IBS is not a disease in stead a functional disorder, and it is actually defined as a brain-gut dysfunction, but just as our opinion, IBS is a more complex condition than this view, and it may affect various systems of the body with a low-grade inflammatory state. Even we had detected in a previous study that IBS may even terminate with urolithiasis in a significant proportion of cases⁽⁷⁾. Parallel to our study⁽⁷⁾, Chadwick and colleagues studied role of inflammation in 77 of cases with IBS and colonic biopsies were taken for conventional histology and immunohistology. Thirty-eight had normal histology, 31 demonstrated microscopic inflammation, and eight fulfilled criteria for lymphocytic colitis. However, in the group with "normal" histology, immunohistology revealed increased intraepithelial lymphocytes as well as increased CD3+ and CD25+ cells in lamina propria, as evidences of immune activation. These features were even more evident in the microscopic inflammation group, who additionally revealed increased neutrophil, mast cell, and natural killer cells. All of these immunopathological abnormalities were most evident in the lymphocytic colitis group, who also demonstrated HLA-DR staining in crypts and increased CD8+ cells in lamina propria⁽⁸⁾. A direct link between immune activation and symptoms was provided by work of Barbara and colleagues, who demonstrated not only an increased prevalence of mast cell degranulation in colon, but also a direct correlation between proximity of mast cells to neuronal elements and pain severity in IBS⁽⁹⁾. In addition to these findings, there are some evidences for extension of the inflammatory process beyond mucosa. Tomblom and colleagues addressed this issue in ten patients with severe IBS by examining full-thickness jejunal biopsies obtained via laparoscopy⁽¹⁰⁾. They detected a low-grade infiltration of lymphocytes in myenteric plexus in nine cases, four of whom had an associated increase in intraepithelial lymphocytes and six demonstrated evidence of neuronal degeneration. Nine patients had hypertrophy of longitudinal muscles and seven had abnormalities in number and size of interstitial cells of Cajal. The finding of intraepithelial

lymphocytosis was consistent with the reports of Chadwick and colleagues in colon and of Wahnschaffe and colleagues in duodenum⁽¹¹⁾. Although probably the more complex mechanism of IBS than the current view, we detected its prevalence as similar in the cholelithiasis and control groups in the present study (43.8% vs. 42.1%, $p>0.05$). So although IBS is probably a cascade of many physiologic events, being initiated with psychological disturbances like stresses and terminating with dysfunctions of probably whole gut via a low-grade inflammatory process, there is not a significant association between IBS and cholelithiasis.

As a conclusion, IBS probably is a cascade of many physiological events, being initiated with infection, inflammation, psychological disturbances-like many stresses and eventually terminated with dysfunctions of gut and probably some other systems of body via a low-grade inflammatory process. Although IBS probably has a much more complex mechanism than the current view and a higher prevalence in society, there is not a significant association between IBS and cholelithiasis.

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