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A retrospective analysis on the concomitance of seborrheic dermatitis and fatty liver disease

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Abstract

The present study aimed to investigate the correlation between seborrheic dermatitis and fatty liver disease and to determine the impact of age, gender, and concomitant chronic diseases. The present study sample included 120 (18-65 years old) patients who were diagnosed with seborrheic dermatitis between January 2018 and December 2018 and underwent upper abdominal ultrasonography. The demographic patient data, the liver fatty tissue rate in ultrasonography reports and the presence of other concomitant diseases were analyzed in the present retrospective study. The mean age of 52 male and 68 female patients was 45.5 ± 17.2 . A total of 47 (39.2%) patients had hepatic steatosis. Hepatic steatosis rate was 52% in male patients and 29.4% in female patients. The mean age of the patients with hepatic steatosis was 54.8 ± 12.7 , and the mean age of the patients with normal liver findings was 38.7 ± 17.2 ($p < 0.05$). The number of patients with other concomitant chronic disease and seborrheic dermatitis was 56 (46.6%), and common concomitant diseases included hypertension (17.5%), diabetes (11.6%), hypothyroidism (7.5%) and hyperlipidemia (5%). Fatty liver disease was diagnosed in 59% of the patients with a comorbid disease, and this rate was 22% in the group without a comorbid disease ($p < 0.05$). In patients with seborrheic dermatitis, as the age progressed and other internal diseases accompanied the disease, the likelihood of hepatic steatosis increased. Furthermore, hepatic steatosis was more common among male seborrheic dermatitis patients.

Keywords: Seborrheic dermatitis, fatty liver disease, ultrasonography.

Introduction

Seborrheic dermatitis is a dermatitis that affects the seborrheic regions and characterized by itching, redness and dandruff. It is one of the most common diseases observed in dermatology outpatient clinics since it could affect all age groups from infants to the elderly. Although the etiology of the disease is unknown, drugs, stress, climate, certain chronic neurological and infectious diseases were reported to lead to seborrheic dermatitis [1,2].

Hepatic steatosis (fatty liver disease) is mainly analyzed in two categories: alcoholic and non-alcoholic. The non-alcoholic disease is the most common liver disease globally and the hepatic symptom of metabolic syndrome [3,4]. Recently, the correlation between seborrheic dermatitis and metabolic syndrome was noted [5].

The association of seborrheic dermatitis with metabolic syndrome as a disease of lipid metabolism is plausible. Thus, potential lipodosis in the liver of patients with oily skin could be expected. In the present study, the presence of fatty liver disease in patients diagnosed with seborrheic dermatitis in dermatology outpatient clinic, and the impact of age, gender, and presence of other concomitant chronic diseases on this correlation were investigated.

Material and Methods

In the present retrospective study, 120 (18-65 years old) patients who were admitted to the hospital between January 2018 and December 2018, diagnosed with seborrheic dermatitis by a dermatologist and underwent upper abdominal ultrasound imaging were included in the study sample. Fatty liver disease was classified as grade 1, 2, and 3 using ultrasound reports of the radiologist. Seborrheic dermatitis was not graded. Patients were required to be diagnosed at least three times for the same chronic disease at different times within one year for the presence of concomitant chronic diseases. Age, gender, and the presence of other concomitant chronic diseases in

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addition to seborrheic dermatitis and fatty liver disease were noted. Before the study, approval was obtained from Karabük University Non-Interventional Clinical Research Ethics Committee (No: 3/9; 18.03.2019).

The study data were analyzed with descriptive analysis, where mean values were used for continuous variables, count, and percentages were used for categorical data. The student's t-test was used for the comparison of the data that exhibited a normal distribution. Mann Whitney-U test was used for comparison of the group data that did not exhibit a normal distribution. The chi-square test and Fisher's Exact test were used to compare the qualitative data. The results were analyzed within a 95% confidence interval and $p < 0.05$ significance level.

Results

A total of 646 (255 males, 391 females) seborrheic dermatitis patient records were available. Among these, 120 patients (52 males, 68 females) were between 18-65 years old, and their liver ultrasonography records were available. The mean age of these patients was 50.2 ± 16.9 and 41.9 ± 17.5 in males and females, respectively. The mean age of all patients was 45.5 ± 17.2 . Male patients were slightly older than female patients ($p < 0.05$) (Table 1).

Table 1. Number of patients with seborrheic dermatitis based on gender and the mean age of these patients

	Number of patients (n)	Mean age (m $\pm$ sd)
Female	68	41.9 ± 17.5
Male	52	50.2 ± 16.9
Total	120	45.5 ± 17.2
(p<0.05)		

Ultrasonography records demonstrated that 73 (60.8%) out of 120 patients did not suffer from fatty liver disease. Fatty liver disease was identified in 47 (39.2%) patients (Grade 1: 37 patients, and Grade 2: 10 patients). No patients were reported with Grade 3 fatty liver disease.

Of the 47 patients with fatty liver disease, 27 were male, and 20 were female patients. The mean age of these patients was 54.8 ± 12.7 , and the mean age of 73 patients with a typical liver was 38.7 ± 17.2 ($p < 0.05$).

The number of patients with a concomitant chronic disease with seborrheic dermatitis was 56 (46.6%). The most prevalent diseases included hypertension (17.5%), diabetes (11.6%), hypothyroidism (7.5%), and hyperlipidemia (5%), respectively. The mean age of these patients was 55.9 ± 13.5 , and the mean age of the patients without seborrheic dermatitis was 37.03 ± 16.4 ($p < 0.05$) (Table 2).

Thirty-three (59%) of 56 patients with seborrheic dermatitis and concomitant chronic disease had fatty liver disease, while only 14 (22%) of 64 patients without the concomitant chronic disease had fatty liver disease ($p < 0.05$) (Figure 1).

Table 2. Percentage distribution and mean age of patients with seborrheic dermatitis based on concomitant chronic diseases

Concomitant Diseases	Number of Patients (Percentage)	Mean Age
Hypertension	21 (%17,5)	55,9±13,5
Diabetes	14 (%11,6)	
Hypothyroidism	9 (%7,5)	
Hyperlipidemia	6 (%5)	
Others	6 (%5)	37,03±16,4
Without chronic disease	64 (53,4)	
(p<0,05)		

Fatty liver disease was observed in 11 of 14 patients with diabetes, in 12 of 21 patients with hypertension, in 4 of 9 patients with hypothyroidism, and 3 of 6 patients with hyperlipidemia (Table 3).

Table 3. Presence of fatty liver disease based on concomitant chronic disease

Concomitant Diseases (n)	Fatty Liver
Diabetes (14)	11 (%78)
Hypertension (21)	12 (%57)
Hypothyroidism (9)	4 (%44)
Hyperlipidemia (6)	3 (%50)

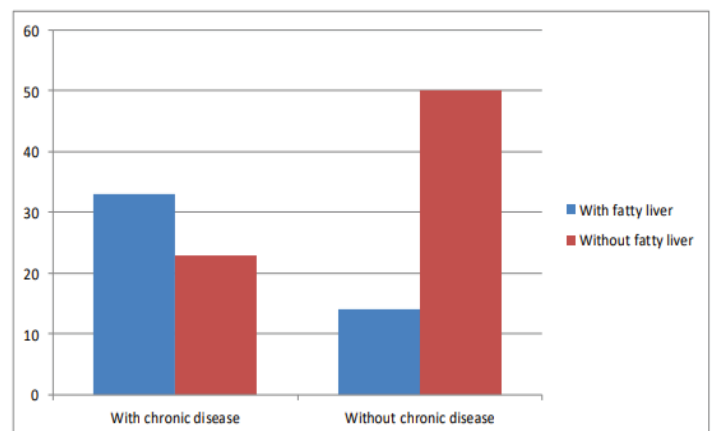


Figure 1. Distribution of patients with seborrheic dermatitis with and without concomitant chronic disease based on the presence of fatty liver disease ($p < 0.05$)

Discussion

Seborrheic dermatitis is a chronic skin disease, observed in patients with oily skin. The disease is diagnosed clinically [1]. Fatty liver disease is primarily identified in ultrasonography. Although the degree of liver inflammation cannot be determined, the accuracy of ultrasonography is 83%, and specificity is 100% in fatty liver diagnosis, and it is the adequate screening test in the diagnosis of fatty liver disease [6].

In a prevalence study conducted on the Turkish population, it was reported that the prevalence of fatty liver disease was 20% in the general population over the age of 18, and this figure reflected the whole population and the most prevalent concomitant disease as obesity [6]. In the present study, the rate was 39.2% in patients in the same age group and diagnosed with seborrheic dermatitis. We considered that this high figure could be associated with the

fact that the findings were obtained from the patient group with ultrasonography indication. Identification of fatty liver disease in a patient group with a mean age of 45 and a chronic disease rate of 47% was expected to be higher when compared to that of a randomized group.

It was reported that concomitant obesity, diabetes, and hypertension, which are frequently associated with fatty liver disease, were more prevalent in patients with seborrheic dermatitis, which is an inflammatory disease when compared to healthy controls [7]. In the present study, it was determined that 33 of 47 patients with seborrheic dermatitis and fatty liver disease had a concomitant chronic disease. Diabetes was one of the most prevalent diseases associated with fatty liver disease [8,9]. We found that 78% of the patients monitored for diabetes had fatty liver disease. Furthermore, approximately half of the patients with hypertension and hyperlipidemia, other markers of metabolic syndrome, had fatty liver symptoms.

Non-alcoholic fatty liver disease was reported to be more prevalent in elderly individuals when compared to other liver diseases [10]. Similarly, the mean age of patients with fatty liver symptoms in the present study was higher when compared to other patients. Fatty liver disease was less prevalent among young patients with seborrheic dermatitis. It could be hypothesized that seborrheic dermatitis could be considered a precursor of metabolic syndrome or visceral lipidosis. To determine this, patients with seborrheic dermatitis should be monitored for indicators of metabolic syndrome such as dyslipidemia, fatty liver disease and obesity for several years.

The highest fatty liver disease level was Grade 2 in patients with seborrheic dermatitis in the present study. No concomitant chronic disease was diagnosed in these patients. Although body mass index was not monitored, the lack of hyperlipidemia, hypertension, and diabetes in the patients reduced the likelihood of metabolic syndrome. Another possibility was the fact that these patients were young, and other clinical findings that would accompany fatty liver disease would occur later. Nonetheless, the non-alcoholic fatty liver disease could develop due to several factors besides the classical risk factors such as diabetes, obesity, and hyperlipidemia [11,12].

Hypothyroidism was also identified as a concomitant chronic disease in patients with seborrheic dermatitis in the present study. Most of the patients were female, and half of those had fatty liver disease. There are studies in the literature that emphasized a strong correlation between hypothyroidism and fatty liver disease [13,14]. A previous meta-analysis study reported that non-alcoholic fatty liver disease was not associated with hypothyroidism [15].

Patients with chronic obstructive pulmonary disease (COPD) were reported to have a higher incidence of fatty liver disease [16,17]. However, in our study group, it was difficult to reach a conclusion, since both the number of patients with seborrheic dermatitis and COPD was low. Optimally, it should be possible to determine whether seborrheic dermatitis, COPD, and fatty liver problems were concomitant.

The most important risk factor for fatty liver disease is obesity [18]. The main limitation of the present study was the lack of

a discussion on this factor since the body mass index was not included in the records. Furthermore, the diagnosis and grading of fatty liver disease could be considered a relatively subjective assessment by the radiologist.

The significance of the present study lies in the fact that it is the first study in the field. We consider that it would shed light on future more comprehensive studies where these limitations could be overcome.

Conclusion

The findings of the present retrospective and descriptive study that investigated the factors affecting fatty liver disease in patients diagnosed with seborrheic dermatitis demonstrated that there was no fatty liver disease development in patients with only seborrheic dermatitis diagnosis. Fatty liver disease is often associated with diseases that are concomitant with seborrheic dermatitis and also metabolic syndrome markers such as (particularly) diabetes, dyslipidemia, and hypertension. However, it should be kept in mind that this chronic inflammatory disease of the skin, which is an organ that is open to the external effects, maybe a preliminary symptom of internal diseases that may trigger fatty liver symptoms observed years before the onset.

Conflict of interest

The authors declare that there are no conflicts of interest.

Competing interests

The authors declare that they have no competing interests.

Financial Disclosure

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Ethical approval

Before the study, permissions were obtained from the local ethical committee.

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