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ORIGINAL ARTICLE

Medicine Science International Medical Journal

Medicine Science 2023;12(4):994-7

Analysis of the epidemiology, coexisting skin diseases, and variables affecting seborrheic dermatitis severity

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Received 02 August 2023; Accepted 01 September 2023
Available online 23.092023 with doi: 10.5455/medscience.2023.08.120

Abstract

Seborrheic dermatitis (SD) is a common chronic skin disease that has a repeating future. SD affects between 1 and 3% of adults with normal immunity. Recent studies have shown that many cutaneous diseases, including SD, are associated with other skin conditions. In this current study, we aimed to assess the epidemiology, comorbid skin diseases accompanying the SD, and factors affecting the severity of the SD. This was a prospective study conducted in dermatology departments between January 2020 and December 2020. The baseline demographic data was recorded. Disease severity was assessed according to the Seborrheic Dermatitis Area and Severity Index (SDASI) scoring system. In this study, 211 patients with SD (92 men and 119 women) were included. The mean age of the patients was 32.51±15.31 years (range: 11–82). The mean disease duration was 38.59 months (range: 1–720 months). Emotional distress was the most common trigger, followed by seasons. The scalp, eyebrows, ears, nasolabial region, forehead, intermammary, postauricular area, and back were the body parts most frequently afflicted. 43 out of 211 patients had concomitant systemic diseases, and 64.5% of the patients had concomitant skin diseases. Also, almost half of the patients applied in the winter. The mean SDASI was 2.92±1.2 (range 0.3–8.1). In this study, SD was more commonly reported in females and the winter. Disease severity was higher in smokers and patients who applied in the summer. The severity of SD was unaffected by concomitant skin disease, gender, age, educational level, working status, skin type, alcohol consumption status, presence of trigger factors, comorbid skin and systemic diseases, and family history of SD or skin diseases. To improve the quality of life for SD patients, factors impacting disease severity should be carefully managed.

Keywords: Dermatitis, seborrheic, epidemiology, quality of life, comorbidity

Introduction

Seborrheic dermatitis (SD) is a common chronic skin disease that has a repeating future. SD affectts between 1 and 3% adults with normal immunity. It affects the seborrheic areas of the body, including the scalp, face (nasolabial folds, ears, and eyebrows), and upper part of the trunk (chest/parasternal region) [1,2]. SD varies in severity. Some people have minor flaky dandruff, while others have severe greasy scaling on the scalp, face, and trunk [1]. SD manifests most largely in babies as yellowish, scaly patches on the scalp that become inflamed to variable degrees and create what is known as "cradle cap." [3]. Men experience it more frequently than women [1,2].

The etiology of SD is multifactorial and still poorly defined. Several environmental triggers may facilitate its development [3,4]. According to a recent study, male sex, pale skin tone, dry skin, and the winter season all correlated to SD [1,2]. The season appears to have an effect on the condition. The lesions develop in the winter, whereas sunshine appears to help the disease's clinical appearance [5,6].

The diagnosis remains clinical, based on the clinical morphology and scaling of the erythema and the distribution of lesion [4]. The treatment of SD aims to modulate sebum production, reduce the colonization of the skin by Malassezia spp., and control inflammation. Despite the fact that there is no permanent treatment for SD, there are numerous methods for doing so [1-4].

Recent studies have shown that a variety of skin diseases,

CITATION
Etgu F. Analysis of the epidemiology, coexisting skin diseases, and variables affecting seborrheic dermatitis severity. Med Science. 2023;12(4):994-7.

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DOI: 10.5455/medscience.2023.08.120

including atopic dermatitis, hidradenitis suppurativa, psoriasis vulgaris and vitiligo, are associated with other skin conditions [7-10]. In addition, SD has also been found to be associated with other skin conditions. Pityriasis versicolor, blepharitis and/or ocular irritation, rosacea, acne vulgaris, Hailey-Hailey disease, and Malassezia folliculitis are frequently observed alongside SD [1,2].

In this current study, we aimed to evaluate the epidemiology, comorbid skin diseases accompanying the SD, and factors affecting the severity of the SD.

Material and Methods

This was a prospective study carried out in dermatology departments between January 2020 and December 2020. Written informed consent was taken from the patients and controls after explanation of the aims of the study in accordance with the Declaration of Helsinki. Ethical approval was taken before to the study.

Base demographic data including gender, age, occupation, education level, marital status, skin type (dry or oily), duration of disease, triggering factors (stress, food, season, smoking status and alcohol consumption status, affected body area, disease severity, family history of SD or any dermatological disease, hospital admission month and season, previous and current therapies, medical and drug history of the individuals were recorded.

Inclusion criteria were patients aged over 18 years with a diagnosis of SD who voluntarily accepted to enroll in the study. Patients who did not want to be involved in the study were excluded.

Seborrheic Dermatitis Area and Severity Index (SDASI) scoring system was used to assess the severity of SD. According to the score, the erythema, desquamation and pruritus of nine different anatomic sites were classified between 0 and 3 as 0=none, 1=mild, 2=moderate, and 3=severe. The score of each site was multiplied by the constant for the area (forehead [0.1], scalp [0.4], nasolabial [0.1], eyebrow [0.1], postauricular [0.1], auricular [0.1], intermammary [0.2], back [0.2], and cheek or chin [0.1]) and the total was determined as the SDASI score (range 0–12,6).

Statistical analysis

Statistical analysis was done with IBM® SPSS® 22 (SPSS Inc., Chicago, IL, USA) software. Categorical parameters are expressed as numbers and percentages, and continuous parameters are expressed as mean and standard deviation (SD). Data distribution was assessed using the Kolmogorov-Smirnov/ Shapiro-Wilk tests. The Mann-Whitney U test was used for continuous variables. Categorical variables are assessed with Pearson's Chi Square or Fisher's Exact Chi Square test was used in the analysis of Pearson's correlation test was used to examine the relationship between scale scores. A P-value of <0.05 was accepted as statistically significant, and the confidence interval was 95%.

Results

In this study there were 211 patients with SD (92 men and 119 women). The mean age of the subjects was 32.51±15.31 years (range: 11–82). The average duration of the disease was 38.59 months (range: 1–720 months). 63 (29.9%) of the patients had an occupation. 7.1% of patients consumed alcohol, and 23.2% smoked. 42.2% of the patients had oily skin.

One-fifth of patients had no trigger. For patients with known triggers, emotional distress was the most common trigger, followed by seasons. The scalp, eyebrows, ears, nasolabial region, forehead, intermammary, postauricular area, and back were the body parts most frequently afflicted. 37% of the patients had a family history of SD.

The rate of those with a family history of any skin disease was 12.8%. Acne, alopecia, atopic dermatitis, hand dermatitis, psoriasis, lichen simplex chronicus, SD, and rosacea were among the diseases found in family members of SD patients. 43 out of 211 patients had concomitant systemic diseases, including anemia, asthma, diabetes, thyroidal diseases, hypertension, and hyperlipidemia. 64.5% of the patients have concomitant skin diseases. Androgenetic alopecia (50%) was the most common cutaneous comorbidity, followed by acne (28%), fungal infections (14%), dermatitis (6%), kserosis (4%), and telogen effluvium (4%). Psoriasis, urticaria, alopecia areata, and vitiligo were other skin conditions seen in patients with SD. January and February were the months with the highest number of cases. Also, almost half of the patients applied in the winter. The average SDASI was 2.92±1.2 (range 0.3–8.1). Intermammary and cheek involvement were seen more commonly in males (p=0.001 and p=0.002, respectively). There was a weak but statistically significant positive correlation between disease severity and disease duration (Pearson's Corr. r=0.186; p=0.007). Concomitant skin diseases were more common in female patients (p=0.024). More male patients had occupations (p=0.001). Disease severity was higher in smokers (p=0.027), patients who had. emotional stress (0.035) and patients who were applied in the summer (p=0.004). Sex, age, educational level, working status, skin type, alcohol consumption, trigger factors, concomitant skin and systemic diseases, and family history of SD or skin diseases did not influence the severity of the disease.

Discussion

SD is more common in males and occurs during puberty, excluding babies, making it more likely that strong hormonal influences, particularly androgens, play a role in disease etiology. Another important known pathogenic agent is Malassezia infection. Its role in SD has been supported by the positive correlation between skin yeast density and the severity of SD and the therapeutic effectiveness of antifungals in SD. Since SD is seen with high frequency in HIV-positive patients, this suggests the commitment of immune deficiency [1].

Risk factors of SD include HIV, tardive dyskinesia, diet,

DOI: 10.5455/medscience.2023.08.120

Parkinson's disease, male gender, stress, depression, smoking, alcoholism, chronic pancreatitis due to alcohol, hepatitis C virus, hypertension, obesity, fatigue, vascular disorders (which can be microangiopathic), immunosuppression, malignancies of the upper respiratory tract and digestive systems, Down syndrome, clothing, eating habits, medications, riboflavin, pyridoxine, or biotin deficiency, and food allergies, and environmental properties, especially climate factors such as humidity and temperature [4,5,11]. Immunocompromised individuals, especially those with AIDS, have a substantially greater incidence of this condition, ranging from 30 to 83% [2].

SD can have a significant negative impact on the quality of the patient'slife. (QoL) [1,6]. SD can result in discomfort, low self-esteem, stigmatization, and decrease in social activities [12]. Patients with facial SD who have flares had higher Skindex scores than SD patients without flares [6]. Emotional stress was the most commonly reported trigger factor in this study.

SD was reported more frequently in men [12-14]. On the contrary, the majority of patients in this study were female, consistent with some previous studies [15-17]. We documented that the scalp was the most commonly affected body part by SD, followed by the eyebrows. According to Emre et al., the most common area of the body affected by SD was the scalp, followed by the nasolabial folds [17]. Nasolabial folds were the most frequent localization of SD in another study [6].

Studies have been done to determine the association between seborrheic dermatitis and seasonal factors [1,5,18]. Some of these studies have shown that the frequency of SD increases in winter in line with our study. According to these studies, Environmental conditions such as excessive humidity, high cloud ratios and low temperatures play a role in SD development [5,18]. The authors came to the conclusion that the symptoms are worse in the winter because of xerosis, decreased barrier function, and a lack of ultraviolet (UV) ray protection [11]. Authors reported that the prevalence of seborrheic dermatitis was lowest in the summer [14]. Increased humidity may be the reason for increased severity of the SD in the summer in this study. Seasonal variations are thought to enhance sebaceous gland activity and alter the normal structure of the epidermis, which might cause SD to manifest [5,11].

Although more than half of the patients in our study had dry skin, but we could not find any correlation between the severity of the SD and either dry or oily skin types. In their population-based study, the authors could not find associations with other determinants, including education smoking and alcohol situation. They reported SD was more common in males with pale, dry skin. Underlying barrier disorders can be the reason for the association between dry skin and SD [14].

In a population-based study conducted in the adult German population, SD was more common in older males, fair skin types. Dermatological comorbidities associated with seborrheic dermatitis included folliculitis, intertriginous dermatitis, contact dermatitis, acne, pyoderma, tinea corporis, and pityriasis versicolor, psoriasis, rosacea, and hemangioma [12]. Nearly two-thirds of the SD patients in our study had concurrent skin diseases, including acne, alopecia areata, androgenetic alopecia, telogen effluvium, fungal infections, dermatitis, psoriasis, and vitiligo.

In addition, we found that one in five patients had systemic comorbidities. In a study, they found the risk of osteoporosis was higher in SD patients [16]. Authors reported that metabolic syndrome and its parameters were more common to SD patients [19]. They showed that medical conditions and underlying diseases influenced the severity of SD [20].

Although emotional stress was the most common trigger for SD in this study, we failed to show worse SDASI scores for patients with emotional stress than patients without emotional stress. In their case control study, the authors found that past history of tobacco consumption, alcohol consumption, and higher levels of stress during the past month were associated with SD flare-ups. Seasonality was not found to be the risk of flares [6]. A cross-sectional study from South Korea discovered a correlation between stress levels and the impairments that SD caused in the Skindex scores [13].

In a cross-sectional study in which the authors examined the effect of diet on SD, most of the patients were female and had white skin. Most of the SD patients were represented in the autumn. The education level, smoking, and dry skin did not differ between patients with or without SD. They reported that a diet with high fruit was linked to a lower incidence of SD [15]. Unfortunately, we could not investigate the effect diet had on SD severity. The education level did not affect disease severity in our study.

Conclusion

In conclusion, SD was more common in females and the winter. Disease severity was higher in smokers and patients who applied in the summer. Nearly two-thirds of the SD patients have accompanying skin diseases. Concomitant skin diseases were more common in females, but it did not affect the severity of SD. Severity of SD was also unaffected by gender, age, educational level, working status, skin type, alcohol consumption status, presence of trigger factors, comorbid skin and systemic diseases, and family history of SD or skin diseases. It is thoroughly comprehended that SD has an extensive impact on quality of life. To improve the quality of life for SD patients, factors impacting disease severity should be carefully treated.

Conflict of Interests
The authors declare that there is no conflict of interest in the study.

Financial Disclosure
The authors declare that they have received no financial support for the study.

Ethical Approval
Ethics committee approval was received for the study from Ordu University Faculty of Medicine Clinical Research Ethics Committee (2022/171).

DOI: 10.5455/medscience.2023.08.120

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