

Demographic Features and Seasonal Variation in Adult and Pediatric Seborrheic Dermatitis: A Cross-Sectional, Single-Center, Hospital-Based Study

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ABSTRACT

Objective: Seborrheic dermatitis (SD) is a common chronic inflammatory skin disorder characterized by erythematous papulosquamous lesions in body regions that are rich in sebaceous glands, particularly the scalp, face, and intertriginous areas. Seasonal variation has been reported in different skin diseases; however, the results have been contradictory. The aim of this research was to analyze the demographic characteristics of patients with SD and to examine the impact of seasonality.

Methods: Patients who were diagnosed with SD at an outpatient dermatology clinic between June 1, 2015 and June 1, 2020 were included in this retrospective, cross-sectional, single-center, hospital-based study. Both pediatric and adult dermatology outpatient cases were evaluated.

Results: A total of 2656 patients with SD presented at the outpatient clinic during the study period. The mean age was 31.99 ± 15.88 years (range: 0–87 years). Among these patients, 1540 (58%) were males and 1116 (42%) were females. SD was most common among those aged 20–30 years (29.9%). The mean age was 29.51 ± 15.43 years in the female patients and 33.80 ± 15.96 in males. Evaluation according to season revealed that 817 (31%) patients presented during the winter months, 615 patients in spring (23%), 452 in summer (17%), and 772 (29%) in the autumn.

Conclusion: SD is a common, multifactorial skin disease. This study evaluated a wide patient profile and it was observed that middle-aged adults and men were the most affected. Patients presented most frequently during the cold weather season. Although the data obtained from this study are similar to others in the existing literature, these findings provide a new contribution to the epidemiological data of Turkey. Prospectively designed, population-based studies that evaluate potential triggering factors will help to explain the full etiology and seasonal incidence more clearly.

INTRODUCTION

Seborrheic dermatitis (SD) is one of the most common inflammatory skin disorders, and affects approximately 2% to 8% of the population, without race or confirmed sex differentiation.^[1,2] The prevalence of SD has a bimodal distribution reflecting 2 peaks, the first occurs during infancy and a second peak is seen after the fourth decade of life. Among adults, SD has sometimes been reported to be more common in males. Several triggering factors have been reported to cause SD flare-ups. A seasonal pattern of occurrence has been considered; however the results of research have been inconsistent.^[2] The objective of the present study was to analyze the demographic character-

istics of patients with SD and to assess the significance of seasonal variation and age.

MATERIALS AND METHODS

This research was conducted at the dermatology clinic of a public university hospital. The study was carried out in accordance with the World Medical Association Declaration of Helsinki and approved by the Cerrahpasa Faculty of Medicine Clinical Research Ethics Committee on August 4, 2020, No: 101469. The outpatient dermatology service database was reviewed retrospectively. Pediatric and adult dermatology outpatient records were retrieved and details of age, sex, and season were recorded and evaluated.

Statistical analysis

The data analysis was performed using NCSS 2007 statistical software (NCSS LLC, Kaysville, UT, USA). The data were analyzed using a chi-squared test and the results were presented using mean±standard deviation and percentage values. A p value <.05 was accepted as statistically significant.

RESULTS

A total of 2656 patients with SD presented at the outpatient clinic between June 1, 2015 and June 1, 2020. Of these patients, 58% (n=1540) were male and 42% (n=1115) were female with a female to male ratio of 1:1.38. The mean age of the patients was 31.99±15.88 years (range:0–87 years) The mean age of the females was 29.51±15.43 years and the mean age of the male patients was 33.80±15.96

Table 1. Age and sex characteristics of seborrheic dermatitis patients

	Age (years)			n (%)
	Minimum	Maximum	Mean	
Male	0	87	33.80	1540 (58)
Female	0	87	29.51	1116 (42)

Table 2. Age distribution of seborrheic dermatitis patients

Age subgroup (years)	Frequency	Percent (%)
0–9	100	3.8
10–19	445	16.8
20–29	796	29.9
30–39	645	24.3
40–49	293	11
50–59	181	6.8
>60	197	7.4
Total	2656	100

Table 3. Seasonal activity of seborrheic dermatitis by sex

		The seasonal activity				Total
		1	2	3	4	
Sex	Count	467	384	239	450	1540
Male	% within sex	30.3	24.9	15.5	29.2	100.0
	% of total	17.6	14.5	9.0	16.9	58.0
Female	Count	350	231	213	322	1116
	% within sex	31.4	20.7	19.1	28.9	100
	% of total	13.2	8.7%	8.0	12.1	42.0
Total	Count	817	615	452	772	2656
	% within sex	30.8	23.2	17.0	29.1	100
	% of total	30.8	23.2	17.0	29.1	100

1: Winter; 2: Spring; 3: Summer; 4: Autumn.

Table 4. Distribution of seborrheic dermatitis activity according to age group and season

Age subgroups		Seasonal activity				Total
		1	2	3	4	
1.00	Count	28	30	18	24	100
	% within subgroup	28.0	30.0	18.0	24.0	100.0
	% of total	1.1	1.1	0.7	0.9	3.8
2.00	Count	144	86	84	131	445
	% within subgroup	32.4	19.3	18.9	29.4	100.0
	% of total	5.4	3.2	3.2	4.9	16.8
3.00	Count	245	171	129	250	795
	% within subgroup	30.8	21.5	16.2	31.4	100
	% of total	9.2	6.4	4.9	9.4	29.9
4.00	Count	215	161	94	175	645
	% within subgroup	33.3	25.0	14.6	27.1	100.0
	% of total	8.1	6.1	3.5	6.6	24.3
5.00	Count	77	75	59	82	293
	% within subgroup	26.3	25.6	20.1	28.0	100.0
	% of total	2.9	2.8	2.2	3.1	11.0
6.00	Count	48	46	34	53	181
	% within subgroup	26.5	25.4	18.8	29.3	100.0
	% of total	1.8	1.7	1.3	2.0	6.8
7.00	Count	60	46	34	57	197
	% within subgroup	30.5	23.4	17.3	28.9	100.0
	% of total	2.3	1.7	1.3	2.1	7.4
Total	Count	817	615	452	772	2656
	% within subgroup	30.8	23.2	17.0	29.1	100.0
	% of total	30.8	23.2	17.0	29.1	100.0

1: Winter; 2: Spring; 3: Summer; 4: Autumn.

years (Table 1). The age distribution was categorized into 7 groups: 0–9, 10–19, 20–29, 30–39, 40–49, 50–59, and >60 years. SD was most commonly seen in the 20–29 age group, followed by the 30–39 group (Table 2). The prevalence of SD was greater in winter and autumn for both sexes (Table 3). While SD activity was higher during the colder months in all adults, spring was the period of greatest activity in the pediatric age group (0–9 years) (Table 4). SD activity was lowest during the summer in all age groups and in both sexes.

DISCUSSION

SD is a common, chronic, relapsing, inflammatory skin disorder that has a negative effect on patient quality of life. While the precise etiology of SD is still unclear, risk factors include male sex, middle-age, immunosuppression, obesity, stress, white skin color, smoking, and alcohol consumption.^[2,3]

As in some literature reports, we found that men were more likely to develop SD than women, possibly due to hormonal differences. Increased androgen levels have been shown to have a significant role in increased sebaceous gland activity. Studies have also reported that a reason for

a sex difference in prevalence may be linked to cutaneous differences in skin pH and the use of skin products, which can alter sebum secretion, the skin microbiome, and the level of skin moisture.^[1,2]

Epidemiological studies have shown SD to have an incidence peak during infancy and after the fourth decade of life.^[1,4] In this study, SD was most commonly seen in the 20–29 age group, followed by the 30–39 group in both sexes, periods when the sebaceous glands and hormonal responses are quite active. However, Zander et al.^[3] reported an increase in the prevalence of SD in elderly patients in a large population-based study. Only 7.4% of our participants were in the geriatric age group.

A seasonal pattern has been proposed in a variety of skin disorders, including alopecia areata, psoriasis, acne, and atopic dermatitis.^[5–12] Our findings revealed the lowest prevalence of SD during the summer in all age groups and for both sexes. This seasonal pattern may be related to increased ultraviolet radiation (UVR) exposure, higher levels of air humidity, and changes to the skin microbiome during warmer months. UVR induces cutaneous immunosuppression, which inhibits the inflammatory reaction. The direct effect of UVR on the microbiome, the circadian rhythm of sebum secretion, and the colonization of *Malassezia* yeast on the skin, may also lead to reduced SD activity in the summer.^[9,10] The prevalence of SD in our study was greater during winter and autumn in adults; however, SD was more common in the spring in the pediatric age group. This difference may support the hypothesis that different etiological factors may influence SD activity in different age groups. In infancy, hormonal factors, the skin microbiome profile, and lower levels of sebum secretion and androgens may be factors in the seasonal difference in prevalence. The greater occurrence of SD during the winter in adolescents and adults may be also related to psychological stress factors, such as school and work. Seasonal activity has been linked to melatonin release in patients with psoriasis.^[9] Melatonin has a role in the regulation of the circadian rhythm and seasonal responses. This hormone has been shown to reach lowest levels in the spring.^[12] Melatonin has been shown to have an anti-inflammatory role in several skin disorders, including SD.^[13,14] Lower levels of this hormone may be a contributing factor to SD flares in cold weather. Topical melatonin application has been reported to result in a decrease in seborrhea and seborrheic dermatitis of the scalp.^[15] The lower humidity in winter months may influence skin permeability and induce thickening of the epidermis by stimulating the secretion of inflammatory mediators, leading to the aggravation of inflammatory skin disorders, such as SD and psoriasis.^[16,17]

Limitations

The interpretation of our results is limited by the retrospective, hospital-based design of the study and the fact that, in many cases, there were records of only 1 visit, which restricted information on subsequent clinical find-

ings. The retrospective nature of the research also limited evaluation of other triggering factors.

CONCLUSION

SD is a common, multifactorial skin disorder, which some studies have reported to be more common in men and the very young and older adults. Disease activity increased during colder seasons in our study, but prospective, population-based studies considering other triggering factors would be valuable to better assess seasonal flares and other influential characteristics. Additional epidemiological data would be useful to better understand the etiopathogenesis of the disease and achieve greater disease control. We believe that the findings of our research will contribute to epidemiological data for Turkey and hope that they also add to broader research on SD.

Ethics Committee Approval

This study was approved by the Istanbul Cerrahpasa-Cerrahpasa Faculty of Medicine Clinical Research Ethics Committee on August 4, 2020 (06/08/2020-101469).

Informed Consent

Retrospective study.

Peer-review

Internally peer-reviewed.

Authorship Contributions

Concept: T.K.U., S.B.; Design: T.K.U., S.B., Z.K.; Supervision: T.K.U., O.A., Z.K.; Fundings: T.K.U., Z.K.; Materials: T.K.U., S.B., Z.K.; Data: T.K.U., Z.K.; Analysis: T.K.U., S.B.; Literature search: T.K.U., S.B.; Writing: T.K.U., S.B.; Critical revision: T.K.U., O.A., Z.K.

Conflict of Interest

None declared.

REFERENCES

1. Dessinioti C, Katsambas A. Seborrheic dermatitis: etiology, risk factors, and treatments: facts and controversies. *Clin Dermatol* 2013;31:343–51.
2. Sanders MGH, Pardo LM, Franco OH, Ginger RS, Nijsten T. Prevalence and determinants of seborrheic dermatitis in a middle-aged and elderly population: the Rotterdam study. *Br J Dermatol* 2018;178:148–53.
3. Zander N, Sommer R, Schäfer I, Reinert R, Kirsten N, Zyrriax BC, et al. Epidemiology and dermatological comorbidity of seborrheic dermatitis: population-based study in 161 269 employees. *Br J Dermatol* 2019;181:743–8.
4. Palamaras I, Kyriakis KP, Stavrianeas NG. Seborrheic dermatitis: lifetime detection rates. *J Eur Acad Dermatol Venereol* 2012;26:524–6.
5. Putterman E, Castelo-Soccio L. Seasonal patterns in alopecia areata, totalis, and universalis. *J Am Acad Dermatol* 2018;79:974–5.
6. Saçar T, Saçar H. Comparison of the distributions of seborrheic dermatitis, herpes zoster and pityriasis rosea according to seasons. *TURKDERM* 2010;44:65–8.
7. Ferguson FJ, Lada G, Hunter HJA, Bundy C, Henry AL, Griffiths CEM, et al. Diurnal and seasonal variation in psoriasis symptoms. *J*

- Eur Acad Dermatol Venereol 2020;35:45–7.
8. Brito LAR, Nascimento ACMD, Marque C, Miot HA. Seasonality of the hospitalizations at a dermatologic ward (2007-2017). *An Bras Dermatol* 2018;93:755–8.
 9. Park KY, Jeong GJ, Seo SJ, Kim MN, Rho NK. Seasonality of acne severity in Korean patients: data from a dermatologic clinic and military hospital. *J Eur Acad Dermatol Venereol* 2019;33:480–2.
 10. Narang I, Sardana K, Bajpai R, Garg VK. Seasonal aggravation of acne in summers and the effect of temperature and humidity in a study in a tropical setting. *J Cosmet Dermatol* 2019;18:1098–104.
 11. Weiss SC, Rowell R, Krochmal L. Impact of seasonality on conducting clinical studies in dermatology. *Clin Dermatol* 2008;26:565–9.
 12. Wu Q, Xu Z, Dan YL, Zhao CN, Mao YM, Liu LN, et al. Seasonality and global public interest in psoriasis: an infodemiology study. *Postgrad Med J* 2020;96:139–43.
 13. Tong X, Leung MHY, Wilkins D, Cheung HHL, Lee PKH. Neutral processes drive seasonal assembly of the skin mycobiome. *mSystems* 2019 26;4:e00004–19.
 14. Rusanova I, Martínez-Ruiz L, Florido J, Rodríguez-Santana C, Guerra-Librero A, Acuña-Castroviejo D, et al. Protective effects of melatonin on the skin: future perspectives. *Int J Mol Sci* 2019;20:4948.
 15. Fischer TW, Trüeb RM, Hänggi G, Innocenti M, Elsner P. Topical melatonin for treatment of androgenetic alopecia. *Int J Trichology* 2012;4:236–45.
 16. Hancox JG, Sheridan SC, Feldman SR, Fleischer AB Jr. Seasonal variation of dermatologic disease in the USA: a study of office visits from 1990 to 1998. *Int J Dermatol* 2004;43:6–11.
 17. Verschoore M, Ortonne JP. Seborrhic dermatitis and daylight. *Acta Derm Venereol* 1993;73:396.

Seboreik Dermatit Tanılı Erişkin ve Çocuk hastalarda Demografik veri ve Mevsimsel Farklılıkların Değerlendirilmesi: Kesitsel, Tek merkezli, Hastane Bazlı Çalışma

Amaç: Seboreik dermatit, toplumda oldukça sık görülen, sebase bezlerden zengin saçlı deri, yüz ve intertrijinal bölgeler gibi alanları etkileyebilen, eritemli papüloskuamöz lezyonlarla kendini gösteren kronik enflamatuvar deri hastalığıdır. Deri hastalıklarında mevsimsel ataklar çeşitli hastalıklarda vurgulanmakla birlikte çelişkili sonuçlar bildirilmiştir. Bu çalışmada, seboreik dermatit tanılı erişkin ve çocuk hastalarımızın demografik verilerini taramak ve mevsimsel farklılıkları karşılaştırmayı amaçladık.

Gereç ve Yöntem: Bu geriye dönük, kesitsel, tek merkezli, hastane bazlı çalışmaya 01.06.2015–01.06.2020 tarihleri arasında hastanemiz deri ve zührevi hastalıkları polikliniğine başvuran ve klinik muayene sonucunda seboreik dermatit tanısı alan hastalar alındı. Bu tanıyı alan hem çocuk hem erişkin hastalar değerlendirildi.

Bulgular: Belirtilen tarihler arasında polikliniğimizde 2656 hasta seboreik dermatit tanısı almıştır. Hastaların ortalama yaşı 31.99 ± 15.88 (0–87) idi. Bu hastaların 1.540 (%58) erkek iken, 1116'sı (%42) kadındı. Yaş gruplarına göre dağılıma bakıldığında seboreik dermatit en sık 20–30 yaş grubunda (%29.9) görülmekteydi. Kadın hastalarda yaş ortalaması 29.51 ± 15.43 iken erkek hastalarda 33.80 ± 15.96 idi. Mevsimsel aktivite karşılaştırıldığında 817 (%31) hastanın kış mevsiminde, 615 hastanın (%23) ilkbaharda, 452 hastanın (%17) yaz mevsiminde, 772 (%29) hastanın ise sonbaharda başvurduğu görüldü.

Sonuç: Seboreik dermatit toplumda sık görülen, multifaktöryel bir deri hastalığıdır. Çalışmamızda oldukça geniş hasta profili değerlendirilmiş ve seboreik dermatitin orta yaş erişkinleri ve erkekleri daha fazla etkilediği görülmüştür. Çalışmamızda hastaların sıklıkla soğuk mevsimlerde başvurduğu gözlenmiştir. Bu çalışmadan elde edilen veriler literatürle benzerlik göstermekle birlikte bu bulguların ülkemiz adına epidemiyolojik verilere katkıda bulunacağını umuyoruz. Hastalarda izlenen mevsimsel atakları daha net açıklayabilmek için diğer tetikleyici faktörlerin de değerlendirildiği, ileriye yönelik tasarlanmış, popülasyon bazlı çalışmaların daha faydalı olacağını düşünüyoruz.

Anahtar Sözcükler: Dermatoloji; enflamasyon; epidemiyoloji; mevsim; seboreik dermatit.