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Behcet's disease in Saudi Arabia: Determinant of health, predictors, clinical presentations and treatment outcomes at a tertiary care hospital

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ABSTRACT

Background: Behcet's Disease (BD) is a chronic multisystemic inflammatory disorder characterized by recurrent oral and genital ulcers, ocular inflammation, and skin lesions. BD predominantly affects populations, including the Middle East, Mediterranean basin, and East Asia, with variable prevalence rates reported across different regions.

Objective: This study aims to evaluate the demographic characteristics, clinical presentations, and treatment outcomes of patients with BD at a tertiary care hospital in Saudi Arabia, identifying key determinants of health and outcome predictors.

Methods: A total of 41 patients diagnosed with BD were retrospectively analysed. Data on demographics, disease duration, family history, comorbidities, clinical manifestations, and treatment outcomes were collected. Logistic regression was used to identify predictors of care outcomes.

Results: The average age of the cohort was 36.75 years, with a slight male predominance (56.10%). Age and disease duration emerged as significant predictors of adverse care outcomes. Having a family history of BD (p-value 0.002), diabetes mellitus (p-value 0.041), and hypertension (p-value 0.035) show statistical significance and may be important factors in the improvement of care outcomes. Age (OR 1.03, 95% CI 1.00-1.06, p-value 0.05) and family history of BD (OR 2.65, 95% CI 1.32-5.33, p-value 0.01) are significant predictors of management outcome.

Conclusion: This study reveals key insights into the characteristics, presentations, and outcomes of Behçet's Disease (BD) patients at a Saudi Arabian hospital. The findings indicated the importance of comprehensive assessment and management strategies to address BD's clinical and familial aspects. Further research can explore additional determinants and interventions to improve BD patient care outcomes.

Keywords: Behcet's disease, Saudi Arabia, health determinants, predictors of care

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INTRODUCTION

Behcet's disease, a systemic inflammatory disorder with multifactorial origins, is marked by recurring bouts of inflammation impacting diverse bodily regions, including the eyes, joints, and gastrointestinal tract [1]. Although rare, this condition can significantly impact the quality of life of affected individuals [2]. The exact cause of Behçet's disease re-mains unknown, but it is believed to involve a complex interplay of genetic, environmental, and immunological factors [3]. Clinically, Behcet's disease presents a broad spectrum of symptoms, including oral and genital ulcers, uveitis, arthritis, and gastrointestinal symptoms such as abdominal pain and diarrhoea [4]. The disease course is characterized by periods of exacerbation and remission, making diagnosis and management challenging [5]. Treatment typically in-volves a multidisciplinary approach to control inflammation, alleviate symptoms, and prevent complications. Despite advances in understanding and managing Behcet's disease, further research is needed to elucidate its pathogenesis, improve diagnostic methods, and develop more effective treatments to serve affected individuals better [6].

Behcet's disease poses a significant health concern in Saudi Arabia and is associated with a notable prevalence within the population [7]. This chronic systemic inflammatory disorder can lead to debilitating symptoms and complications, impacting the overall well-being and quality of life of affected individuals [8]. The high prevalence of Behcet's disease in Saudi Arabia underscores the need for increased awareness, research, and healthcare resources dedicated to it diagnose-sis, management, and prevention [9]. By addressing this health concern, healthcare professionals and policymakers can better support individuals living with Behçet's Disease and work towards improving their overall health outcomes [10]. Further research into the epidemiology, genetic predispositions, and environmental factors contributing to Behçet's Disease in the Saudi Arabian population is crucial for developing targeted interventions and strategies to mitigate its impact on public health.

Existing knowledge of Behcet's disease, based on studies conducted in various populations around the world, has documented a range of clinical presentations and treatment outcomes [11-14]. These studies have helped delineate the disease's common symptoms, such as mouth and genital ulcers, eye inflammation, skin lesions, and less common manifestations involving the vascular, gastrointestinal, and nervous systems. Treatment outcomes have

been variable, with some patients responding well to medications like corticosteroids, immunosuppressants, and biologics, while others may experience recurrent or refractory disease [15, 16].

However, there appears to be a scarcity of research explicitly addressing Behcet's disease within the Saudi Arabian population. This gap is notable because genetic, environmental, and lifestyle factors can influence the disease's presentation and course, and these factors can vary significantly from one population to another [17, 18]. The limited research on Behçet's Disease in Saudi Arabia suggests a need for more localized studies to understand better the disease's characteristics, treatment responses, and outcomes in this specific population, which may have unique genetic and environmental influences.

The lack of research on Behcet's disease in the Saudi Arabian population is a significant issue, as global studies do not provide enough understanding of how the disease presents and progresses in this demography. This gap is crucial because genetic makeup, environmental factors, and health practices can affect how the disease is expressed and man-aged. Without specific data from Saudi Arabia, clinicians may have to rely on findings from other populations that may not accurately reflect the local disease behaviour, leading to suboptimal patient care. Therefore, targeted research in this population is necessary to inform more effective diagnosis, treatment, and health policy for Saudi patients with Behcet's disease.

The study addresses the knowledge deficit regarding Behcet's disease in Saudi Arabia by investigating its clinical manifestations and treatment outcomes within a tertiary care hospital setting. This research is pivotal for identifying local disease patterns, assessing the effectiveness of current treatments, and understanding the influence of unique genetic and environmental factors specific to the Saudi population. The goal is to improve patient care, guide health policy, and contribute to the global understanding of Behcet's disease through region specific insights.

This study aims to examine the clinical manifestations and treatment outcomes of Behcet's Disease in Saudi Arabia. The research question being addressed is: What are the clinical presentations and treatment outcomes of Behcet's Disease in Saudi Arabia? It is hypothesized that the disease presents with distinct clinical characteristics and has different treatment outcomes in Saudi Arabia than other populations. The goal is to investigate these clinical presentations and treatment outcomes in the context of Saudi Arabia.

MATERIALS AND METHODS

Research design

This study was a retrospective cohort study, using a review of electronic medical records as the research method.

Study site

The research was conducted at Al Baha tertiary care hospital located in Saudi Arabia.

Study participants

The study enrolled individuals diagnosed with Behcet's disease who were managed from January 2022 to January 2023.

Sample size

Total coverage of all population.

Inclusion criteria

The inclusion criteria comprised a diagnosis of Behçet's Disease based on the International Criteria for Behçet's Disease (ICBD).

Exclusion criteria

Patients not managed in the hospital during the study timeframe.

Sampling technique

The study uses total population sampling. We included all patients treated for Behcet's disease at the hospital, so it's total population sampling.

Data collection

This study involved reviewing electronic medical records of patients with Behcet's Disease admitted to the hospital during the study period.

Study instrument

The study utilized a standardized data collection instrument designed to capture relevant demographic information, clinical manifestations, treatment regimens, and outcomes of patients diagnosed with Behcet's disease.

Data analysis

The data analysis encompassed descriptive statistics to briefly outline the demographic and clinical attributes of the study cohort, alongside statistical examination to contrast the clinical outcomes among patients subjected to diverse treatments. The statistical appraisal involved employing the chi-square test to scrutinize the distribution of categorical variables and the student's t-test to assess the means of continuous variables. Statistical analysis, including logistic regression, explored various dimensions of Behcet's disease, including risk factors, prognostic indicators, and treatment outcomes.

Approval statement/ethics statement

The Institutional Review Board (IRB) was obtained from the College of Medicine, University of Bisha.

RESULTS

Forty-one patients with Behcet's disease were recruited from the rheumatology clinic of a tertiary care hospital in Saudi Arabia. Table 1 presents aggregated data on a group of patients, detailing their demographics, health status, and medical history. The mean (average) age of the patients is 36.75 years. The Standard Deviation (SD) of age is 1.59, which suggests that the ages of the patients are relatively close to the mean, indicating a narrow age range among them. Of the total, 23 patients are male, which is 56.10% of the group. 18 patients are female, comprising 43.90% of the group. This shows a slightly higher representation of males in the patient group. In this population, 32 patients are married, accounting for 78.05% of the group, and 9 patients are single, making up 21.95%. The majority of the patients are married. On average, patients have been living with their disease for 6.9 years. The standard deviation is 0.72 years, indicating that the disease duration among patients does not vary widely. About 14 patients have a family history of BD, which is 34.15% of the group; 27 patients do not have a family history of BD, representing 65.85% of the group, and the

majority do not have a family history of BD.

Regarding family history of autoimmune diseases, 5 patients have a family history of autoimmune diseases, accounting for 12.20% of the group. 36 patients do not have such a history, which is 87.80% of the group. This indicates that a family history of autoimmune diseases is relatively uncommon in this patient group. Regarding Diabetes Mellitus (DM), about 8 patients have diabetes mellitus, which is 19.51% of the group. However, 33 patients do not have DM, making up 80.49% of the group, and most of the patients do not have DM. Taking into account the history of Hypertension (HTN), we found that 4 patients have hypertension, equating to 9.76% of the group.

Meanwhile, 37 patients do not have hypertension, which is 90.24% of the group. Hypertension is relatively rare among these patients. From this analysis, we can infer that the patient group is relatively young and predominantly married, with more males than females. The average duration of the disease is close to 7 years, and most patients do not have a family history of BD or autoimmune diseases. A smaller portion of the group has DM or HTN.

Figure 1 and table 2 show the distribution of clinical presentations of Behcet's disease in our study population. Skin related symptoms were reported in different forms, with erythema nodosum being the most common, affecting nearly 42% of cases. Pustules and thrombophlebitis are equally reported in 25% of cases each, acneiform lesions are less common, and a small percentage of cases had no skin manifestations. Most cases involve musculoskeletal symptoms, with arthralgia (joint pain) reported in about 61% of cases. Arthritis is present in roughly 24% of cases, while fewer had no such symptoms. Gastrointestinal symptoms are diverse, with abdominal pain and nausea being more common, but over half of the cases reported no gastrointestinal symptoms. Various eye related symptoms are noted. Red eye is the most frequent ocular issue, present in about 32% of cases, with other conditions like blurred vision, uveitis, and conjunctivitis also reported. However, several cases did not present with any ocular symptoms. Headaches are the most common neurological symptom at 35%. Other symptoms like numbness, difficulty hearing, and facial palsy are present to a lesser extent.

A notable portion of cases reported no neurological symptoms. Most cases (82.5%) reported no pulmonary symptoms, while a small number reported asthma, chest pain, and shortness of breath. Very few cardiac related issues are noted, with most cases reporting no cardiac symptoms. Ischemic Heart Disease (IHD) was present in a small fraction. Deep Vein Thrombosis (DVT) and Pulmonary Embolism (PE) are reported in a small number of cases, with the majority not experiencing thrombosis. The percentages suggest the frequency of each symptom among the patient population studied. Some symptoms are standard (e.g., arthralgia in the musculoskeletal system), while others are rare (e.g., hemiplegia in the neurological system). This distribution highlights the heterogeneity of Behcet's disease manifestations and underscores the need for a comprehensive approach to diagnosis and management tailored to the prevalence and severity of individual symptoms. This result provides a quantitative overview of symptom prevalence and can help understand the most common clinical manifestations of the condition being studied. It may help clinicians anticipate what symptoms to look for and guide further research into why specific symptoms are more prevalent than others.

The total number of patients within each category is also provided, along with p-values, to indicate the statistical significance of the observed differences (Table 3). While gender and marital status do not appear to significantly influence care outcomes, having a family history of BD (p-value 0.002), diabetes mellitus (p-value 0.041), and hypertension (p-value 0.035) show statistical significance and may be essential factors in the improvement of care outcomes. Suggests that these factors may have a statistically significant influence on care outcome improvement.

Figure 2 reflects the treatment patterns within the patient group. The high percentages of patients receiving Vitamin D, Colchicine, and Steroids suggest that these may be Firstline or standard treatments for the condition being managed. In contrast, treatments like Methotrexate, Biological therapy, and Apremilast are less frequently used, which could imply they are reserved for specific subgroups of patients or for those who do not respond to more standard treatments. The presence of medications such as PPIs and Warfarin suggests that there are concerns about gastrointestinal side effects and blood clotting, respectively, which may be related to the disease itself or as a result of the other medications used in treatment.

Table 4 presents the results of the regression analysis to predict management outcomes. The intercept of 0.92 indicates the estimated odds of the outcome when all other predictors are held constant. The p-value of 0.051 suggests that this intercept is marginally statistically significant.

The odds of the outcome are 0.92 when all predictors are zero. The p-value of 0.051 suggests that this intercept is marginally statistically significant. The 95% CI indicates that the true population parameter lies between 0.46 and 1.85 with 95% confidence.

For every 1-year increase in age, the odds of the management outcome increase by a factor of 1.03. This relationship is statistically significant at the 0.05 level. The 95% CI for the odds ratio ranges from 1.00 to 1.06.

The odds of the outcome for males compared to females are 1.25, but this difference is not statistically significant. The 95% CI indicates that the true odds ratio could range from 0.85 to 1.83.

The odds of the outcome for married individuals compared to single individuals are 0.78, but this difference is not statistically significant. The 95% CI indicates that the true odds ratio could range from 0.52 to 1.17.

Having a family history of BD increases the odds of the outcome by a factor of 2.65, and this difference is statistically significant at the 0.01 level. The 95% CI for the odds ratio ranges from 1.32 to 5.33.

The odds of the outcome for individuals with other chronic diseases compared to those without are 1.85, but this difference is not statistically significant at the conventional significance level of 0.05. However, the p-value is close to the threshold, indicating borderline significance. The 95% CI for the odds ratio ranges from 0.97 to 3.51.

Diabetes decreases the odds of the management outcome by a factor of 0.58, but this difference is not statistically significant.

The 95% confidence interval for the odds ratio ranges from 0.31 to 1.08.

The odds of the outcome for individuals with hypertension compared to those without are 1.44, but this difference is not statistically significant. The 95% CI for the odds ratio ranges from 0.89 to 2.34.

In summary, age (OR 1.03, 95% CI 1.00-1.06, p-value 0.05) and family history of BD (OR 2.65, 95% CI 1.32-5.33, p-value 0.01) are significant predictors of care outcome, while the significance of the intercept is borderline. Other predictors such as gender, marital status, presence of other chronic diseases, diabetes, and hypertension do not show statistically significant associations with the outcome at the conventional significance level of 0.05.

Tab. 1. Patient profile and general characteristics

Characteristics	Level	Number (%)
Age	Mean ± Sd	36.75 ± 1.59
Gender	Male	23 (56.10)
	Female	18 (43.90)
Marital status	Married	32 (78.05)
	Single	9 (21.95)
Disease duration in years	Mean ± Sd	6.9 ± 0.72
Family history of BD	Yes	14 (34.15)
	No	27 (65.85)
Family history of autoimmune diseases	Yes	5 (12.20)
	No	36 (87.80)
DM	Yes	8 (19.51)
	No	33 (80.49)
HTN	Yes	4 (9.76)
	No	37 (90.24)

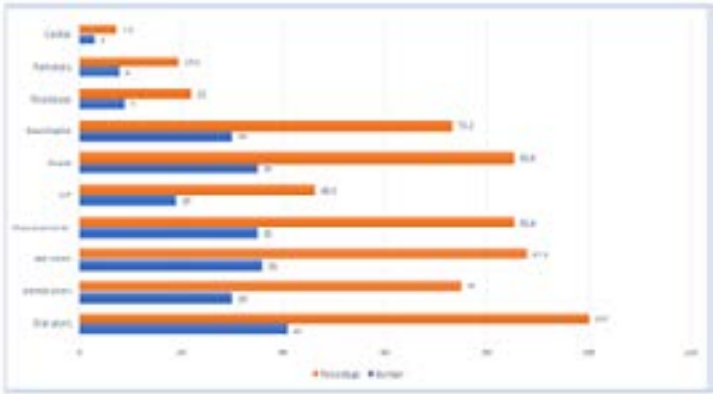

Fig. 1. Distribution of clinical presentations of Behcet's disease in our study population

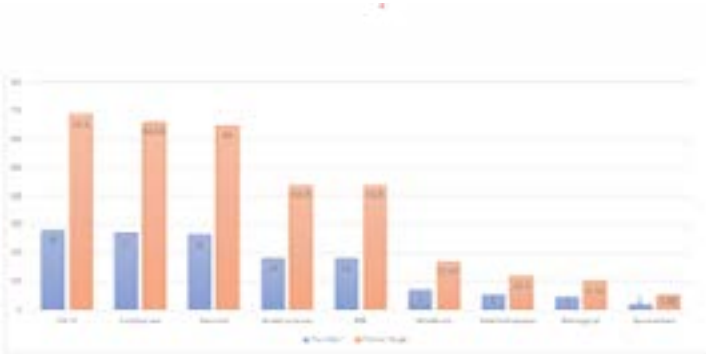

Fig. 2. Distribution by treatment received

Tab. 2. Clinical presentation details by system

Clinical Presentation		Number	Percent (%)
Skin manifestation	Erythema Nod	15	41.67
	Pustules	9	25
	Thrombophlibitis	9	25
	Acneiform lesion	3	8.33
	No	5	12.2
Musculoskeletal	Arthralgia	25	60.98
	Arthritis	10	24.39
	No	6	14.63
Gastrointestinal	Abd.pain	6	14.63
	Diarrhea	1	2.44
	Nausea	12	29.27
	No	22	53.66
Ocular	Blurred vision	7	17.07
	Cataract	1	2.44
	Hypopyon	1	2.44
	No	6	14.63
	Red eye	13	31.71
	Uveitis	4	9.76
	Conjunctivitis	3	7.32
	Eye pain	5	12.2
	Papillitis	1	2.44
Neurological	Difficult speech	1	2.5
	Headache	14	35
	Hemiplegia	1	2.5
	No	11	27.5
	Numbness	4	10
	Difficult hearing	4	10
	Facial palsy	2	5
	Meningoencephalitis	2	5
	Tremors	1	2.5
Pulmonary	No	33	82.5
	Asthma	2	5
	Chest pain	1	2.5
	Shortness of breath	4	10
Cardiac	IHD	2	4.88
	No	38	92.68
	Valvular	1	2.44
Thrombosis	DVT	4	9.76
	Inf V Cava	1	2.44
	No	32	78.05
	PE	2	4.88
	Renal	1	2.44
	Stoke, DVT	1	2.44

Tab. 3. Factor influence the care outcome improvement

Factors		Care Outcome Number (%)			
		Improved	Not	Total	p-value
Gender	Male	20 (48.8)	3 (7.3)	23 (56)	0.1
	Female	15 (42 %)	3 (7.3)	18 (44)	
Marital status	Married	27 (56.9)	5 (12.2)	32 (78.1)	0.11
	Single	8 (19.5)	1 (2.4)	9 (21.9)	
Family history of BD	Yes	12 (29.2)	2 (4.8)	14 (34)	0.002
	No	23 (56.2)	4 (9.8)	27 (66)	
Family history of autoimmune diseases	Yes	4 (9.8)	1 (2.4)	5 (12.2)	0.13
	No	31 (75.6)	5 (12.2)	36 (87.8)	
Diabetes Millitus	Yes	5 (12.2)	3 (7.3)	8 (19.6)	0.041
	No	30 (73.2)	3 (7.3)	33 (80.5)	
Hypertension	Yes	2 (4.9)	2 (4.9)	4 (9.8)	0.035
	No	33 (80.5)	4 (9.7)	37 (90.2)	
Total		35 (85.4)	6 (14.6)	41 (100)	

Tab. 4. Regression results for predicting care outcome

Predictor	Odds Ratio (OR)	p-value	95% (CI)
Intercept	0.92	0.051	0.46-1.85
Age (per year increase)	1.03	0.045*	1.00-1.06
Gender (Male *vs*. Female)	1.25	0.31	0.85-1.83
Marital Status (Married *vs.* Single)	0.78	0.24	0.52-1.17
Family History of BD (Yes *vs.* No)	2.65	0.003**	1.32-5.33
Other chronic diseases (Yes *vs.* No)	1.85	0.062	0.97-3.51
Diabetes (Yes *vs*. No)	0.58	0.089	0.31-1.08
Hypertension (Yes *vs*. No)	1.44	0.135	0.89-2.34

* p<0.05, ** p<0.01

DISCUSSION

The study of 41 patients with Behcet's disease from a rheumatology clinic in Saudi Arabia offers a snapshot of this population's demographic and clinical characteristics. The mean age of 36.75 years with a relatively small standard deviation suggests a patient population confined to a specific age group, predominantly in their mid-thirties. This age distribution is consistent with Behçet's disease, typically manifesting in the third decade of life, as reported in the literature [19-21].

The gender distribution, with a higher proportion of males (56.10%) compared to females (43.90%), may reflect the known gender discrepancies reported in Behcet's disease prevalence in Middle Eastern countries [22]. However, it is contrary to some studies from other regions where the disease has shown a female predominance or an equal gender distribution, suggesting potential geographical or ethnic influences on the epidemiology of the disease [23, 24].

The marital status of the patients, where a significant majority were married (78.05%), is reflected in societal norms but may also suggest social support in managing chronic diseases. Marital status as a social determinant of health warrants further exploration to understand its impact on disease outcomes [25].

The family history of Behcet's disease in one-third of the patients (34.15%) is an important finding, as it suggests a potential genetic component or a familial predisposition. This proportion is higher than in some other populations, suggesting possible genetic or environmental factors that might be unique to this cohort [26, 27].

Regarding clinical presentations, the universal occurrence of oral ulcers and the high frequency of genital ulcers, skin ulcers, and ocular symptoms. These findings are consistent with other studies, underscoring the importance of these symptoms in diagnosis and monitoring [28, 29].

Compared to other conditions, gastrointestinal and neurological symptoms were less common, contrasting with certain studies (30, 31) highlighting a higher prevalence of these symptoms. This discrepancy could be due to genetic variations, disease classification, or reporting differences [30, 31].

The lower prevalence of vascular complications like thrombosis and cardiovascular involvement in this study is notable. It is consistent with the literature [32]. It could suggest a subtype of Behcet's disease with less vascular involvement or may reflect the effectiveness of treatments that mitigate these complications.

In terms of predictors of care outcomes, the significant association of increased age and disease duration with worse outcomes is a finding that resonates with the understanding that Behcet's disease can have a cumulative impact over time [33]. This emphasizes the need for early intervention and possibly more aggressive treatment strategies for those with longer disease duration to potentially alter the disease trajectory.

The lack of significant findings related to gender, marital status,

and comorbid conditions like diabetes and hypertension in predicting care outcomes is intriguing. While these factors influence the disease prevalence or demographic profile, they may not directly impact the disease course or response to treatment [34]. This could be due to the multifactorial nature of the disease, where a complex interplay of genetic, environmental, and immunological factors determines the outcome more than individual demographic characteristics.

The study's findings contribute to the growing body of Behcet's disease literature. However, they should be contextualized within its limitations, such as the small sample size and the single centre design, which may limit the generalizability of the results. Moreover, the study's cross-sectional nature means that causal inferences cannot be drawn.

Compared with other studies, it is crucial to consider regional differences in disease expression and management, which may reflect distinct genetic backgrounds and healthcare approaches [35]. Further, multicentre, longitudinal studies with larger sample sizes are needed to understand better the nuances of Behcet's disease across different populations and to clarify the impact of demographic factors on disease outcomes.

CONCLUSION

This study provides valuable insights into the clinical presentations and treatment outcomes of Behcet's disease in Saudi Arabia, highlighting the need for further research to improve patient outcomes and advance our understanding of this rare disease.

Future research could focus on identifying potential genetic and environmental risk factors for Behcet's disease in Saudi Arabia and exploring the effectiveness of novel treatment approaches to improve patient outcomes and quality of life.

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CONFLICTS Of INTEREST

Not declared

AVAILABILITY OF DATA AND MATERIALS

The datasets during and/or analysed during the current study are available on rea-sonable request.

REFERENCES

1. Yazici H, Seyahi E, Hatemi G. Behçet syndrome: a contemporary view. Nat Rev Rheumatol. 2018;14:107-119.
2. Lavalle S, Caruso S, Foti R. Behçet's Disease, Pathogenesis, Clinical Features, and Treatment Approaches: A Comprehensive Review. Medicina. 2024;60:562.
3. Merlo Pich LM, Ziogas A, Netea MG. Genetic and epigenetic dysregulation of innate immune mechanisms in autoinflammatory diseases. The FEBS Journal. 2024;291:917-933.
4. Esatoglu SN, Ozguler Y, Hatemi G. Disease and Treatment-Specific Complications of Behçet Syndrome. Curr Rheumatol Rep. 2024;26:1-1.
5. Nguyen GH, Camilleri MJ, Wetter DA. Characterization and Management of Amicrobial Pustulosis of the Folds, Aseptic Abscess Syndrome, Behçet Disease, Neutrophilic Eccrine Hidradenitis, and Pyostomatitis Vegetans–Pyodermatitis Vegetans. Dermatol Clin. 2024;42:127-136.
6. Morales CM, Gil JG, García NB. SER recommendations on treatment of refractory Behçet's syndrome. Reumatología Clínica. 2024;20:93-100.
7. Sornsamdang G, Shobana J, Chanprapaph K, Novel genetic variants of HLA gene associated with Thai Behcet's disease (BD) patients using next generation sequencing technology. Sci Rep. 2024;14:7967.
8. Erdogan Z, Kurcer M. A, Demirel U. The Use of Complementary and Integrative Health Approaches in Patients with Behcet Disease and Its Relationship with Quality of Life. Akdeniz Tıp Dergisi. 2023;9:51-59.
9. Makkawi S, Aljafari D, Alsharif R, The clinical and radiological features and prevalence of Neuro-Behçet's Disease: A retrospective cohort multicenter study in Saudi Arabia. Mult Scler Relat Disord. 2024;85:105558.
10. Schneider CH, Parambath S, Young J. J, From local action to global policy: a comparative policy content analysis of national policies to address musculoskeletal health to inform global policy development. Int J Health Policy Manag. 2023;12.
11. Marinello D, Palla I, Lorenzoni V. Exploring disease perception in Behçet's syndrome: combining a quantitative and a qualitative study based on a narrative medicine approach. Orphanet J Rare Dis. 2023;18:58.
12. Soares AC, Pires FR, de Oliveira Quintanilha NR,. Oral Lesions as the Primary Manifestations of Behçet's Disease: The Importance of Interdisciplinary Diagnostics—A Case Report. Biomedicines. 2023;11:1882.
13. Alharthy F, Almaqati AS, Alsulami S. Behcet's disease in Saudi Arabia: clinical and demographic characteristics. Cureus. 2023;15: 34867.
14. Haghighi AB, Nazarinia MA. Indications, response, and side effects of biologic treatment in Behçet's disease: an 8-year study with follow-up. Reumatologia. 2024;62:1-9.
15. Fragoulis GE, Bertsias G, Bodaghi B,. Treat to target in Behcet's disease: Should we follow the paradigm of other systemic rheumatic diseases?. Clin Immunol. 2023;246:109186.
16. Alghanim KK, AlSomali HF, Alharbi A,. Vascular and Neurological Manifestations of Behcet's disease in the Eastern Province of Saudi Arabia. Ann Rheum Autoimmun. 2023;3:50-55.
17. Hassan F, Jeries H, Naffaa ME. Challenges in the Timely diagnosis of Behcet's disease Life. 2023;13:1157.
18. Tomizuka T, Kikuchi H, Okubo M,. Natural history of Behçet's disease focusing on remission of oral ulcers. Mod Rheumatol. 2023;33:566-573.
19. Nowatzky J, Hatemi G, Hamuryudan V,. Behçet Syndrome. In: A Clinician's Pearls & Myths in Rheumatology. Springer Int Publ. 2023.311-325.
20. Emmi G, Bettiol A, Hatemi G, Behcet's syndrome. The Lancet. 2024.
21. Chamoun N, El Bejjani M, El Ayoubi N,. Clinical Characteristics of Neuro-Behçet's Disease: A Retrospective Study in a Tertiary Care Center in a Third World Country.
22. Oguz E, Bektaş M. Characteristics of Patients With Behçet Disease From the Van Province, Eastern Turkey: Definition of Disease Clusters in a Tertiary Referral Center. J Clin Rheumatol. 2023;29:285-290.
23. Hirata LT, Teixeira CE, Magalhaes EP,. The Influence of Time on the Epidemiology and Clinical Manifestations of Behçet's Disease in Brazil. J Clin Med. 2023;12:7008.
24. Lanis A, Alexanderson H, Ardalan K, Mental health in paediatric and adult myositis-related diseases: current state of research, interventions, and future steps from the MIHRA Psychological Impact Scientific Working Group. Clin Exp Rheumatol. 2024;42:413-424.
25. Seyahi E, Ugurlu S, Amikishiyev S,. Behçet disease, familial Mediterranean fever and MEFV variations: More than just an association. Clin Immunol. 2023;248:109630.
26. Erdem Sultanoglu T, Eroz R, Ataoglu S. Evaluation of HLA-B51 frequency and its relationship with clinical findings in patients with Behçet's disease: 4-year analysis in a single center. Egypt Rheumatol Rehabil. 2023;50:15.
27. Contreras DM, Bay FC, Martinez EH. Behçet Syndrome, Clinical Presentation and Risk Factors. Int J Med Sci Clin Res Stud. 2023;3:2912-2914.
28. Mirzamohammadi A, Salehi O, Hosseini SM,. The Relationship Between Socioeconomic Status and Behcet's disease Manifestations. 2023;3:2912–2914
29. Manuelyan Z, Butt E, Parupudi S. Gastrointestinal Behçet's disease: Manifestations, diagnosis, and management. Dis Mon. 2024;70:101674.
30. Kidd DP. Neurological involvement by Behçet's syndrome: clinical features, diagnosis, treatment and outcome. Pract Neurol. 2023;23:386-400.
31. Nagafuchi H, Kikuchi H, Ishibash H,. Recommendations for the management of the vascular involvement in Behçet's disease by the Japanese National Research Committee for Behçet's disease—secondary publication. Mod Rheumatol. 2024;34:182-193.
32. Murakami K, Arai J, Ihara S,. Upper gastrointestinal involvement of Behçet's disease in Japan: endoscopic findings and clinical features. J Gastroenterol Hepatol. 2024;39:75-83.
33. Tekgoz N, Tekgoz E, Colak S,. Age-related differences in the clinical phenotypes of Behçet's disease: The experience of two referral centres. Mod Rheumatol. 2024;34:194-200.
34. Murakami K, Arai J, Ihara S,. Upper gastrointestinal involvement of Behçet's disease in Japan: endoscopic findings and clinical features. J Gastroenterol Hepatol. 2024;39:75-83.
35. Takeuchi M, Usui Y, Namba K,. Ten-year follow-up of infliximab treatment for uveitis in Behçet disease patients: A multicenter retrospective study. Front Med (Lausanne). 2023;10:1095423.