Alopecia areata: characteristics and associated diseases among patients in Aden, Yemen

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Abstract

Objective: The aim of the study was to describe the demographic and clinical characteristics of alopecia areata and to determine the associated diseases among patients.

Materials and method: This is a retrospective study of all patients who presented with alopecia areata and who were seen in our two private dermatology clinics in Aden. The patients' charts retrieved obtained the study data. The data was analyzed using SPSS version 17.

The relationships between study variables and sex were examined using Pearson's Chi-square Test. Significance was considered at P value ≤ 0.05.

Results: The total patients were 264 (females 61.7% and males 38.3%).

The mean age of patients was 18 years. The relation between age and means of gender were statistically highly significant (p = 0.000).

The age group 1 – 10 years represented (36.7%) cases, followed by the age group 11 – 20 years with (24.1%) of cases.

In male patients the peak age of onset was in the ages 21-30 years with (13.3%).

Ninety (96%) of the cases occurred in the age of ≤ 40 years (p = 0.003).

Family history was positive among 9.9% of patients and the most of alopecia areata patterns were patchy with (83.3%).

Also, multiple patches were the most common type (60.0%) followed by single patches (33.3%).

Pitting was the most common presenting nail changes, being found in (11.6%) patients. Atopic dermatitis (4.4%), hypothyroid (2.8%), were the most common comorbidities. The most site involvement was the scalp (89.2%). The mean disease duration at the time of presentation for all patients was 3.7 months.

Conclusion: This study highlights the importance of further studies in this field.

Key words: Alopecia areata, clinical characteristics, associated diseases, Aden

Introduction

Alopecia areata (AA) is a form of alopecia caused by autoimmune attack of the hair follicles. This most commonly results in discrete, circular patches of alopecia on the scalp or in the beard region [1].

This hair follicle disorder is a common disease with an incidence of 2-3% among the dermatoses and 0.1% in the population at large [2].

Alopecia areata is manifested as the loss of hair in well-circumscribed patches of normal-appearing skin, most commonly on the scalp and in the region of the beard [3]. The onset is typically rapid, and the disease can progress to the point where all the hair is lost on the scalp (alopecia areata totalis) or even on the whole body (alopecia areata universalis). Variants of this disorder include ophiasis, (in which hair loss affects the occipital scalp); diffuse forms of alopecia; and "sudden graying," a variant in which pigmented hair follicles are attacked, with the result that preexisting gray hairs are demasked [4,5].

Hence, it has now been widely postulated that AA is an organ-specific autoimmune disease with genetic predisposition and an environmental trigger [6,7].

The aim of the study was to describe the demographic and clinical characteristics of alopecia areata and to determine the associated diseases among Yemeni patients in Aden.

Materials and Method

This is a retrospective study of all patients who presented with alopecia areata and who were seen in our two private dermatology clinics in Aden during the period from January 2016 to December 2018.

The total study patients during this period were 264. The patients' charts were retrieved and obtained data about sex, age, alopecia areata patterns, family history, type of patches, nail changes, the variables of associated diseases, site involvements and the mean disease duration at the time of presentation.

The data was analyzed using SPSS version 17. Data was presented as frequencies and percentages for categorized variables and as means and standard deviation for continuous variables. The relationships between study variables and sex were examined using Pearson's Chi-square Test. Significance was considered at P value ≤ 0.05.

Results

A total of 264 alopecia areata patients were included during the study period; out of them 163 (61.7%) were females and 101 (38.3%) were males, with a female to male ratio of 1.6:1. The mean age of females was 15.8 years (SD = ±11.6 years) and the age ranged between 1 year to 58 years, while the mean age of males was 21.4 years (SD = ±12.1 years) and the age ranged between 1 year to 60 years.

The mean age of all patients was 18 years (SD = ±12.1 years) and the age ranged from 1 year to 60 years. The relation between means showed statistically highly significant (p = 0.000).

Table 1: Mean age of patients related to sex

Sex	No (%)	Mean age (years)	SD* (years)	Minimum (years)	Maximum (years)
Female	163 (61.7)	15.8	11.6	1	58
Male	101 (38.3)	21.4	12.1	1	60
Total	264 (100)	18.0	12.1	1	60

* SD = Standard deviation
P = 0.000

Table 2 shows the age group 1 – 10 years represented 97 (36.7%) cases, followed by the age group 11 – 20 years with 64 (24.1%) cases, the age group 21 – 30 years with 63 (23.9%), and the age group 31 – 40 years with 30 (11.4%).

The age group 41 – 50 years were 8 (3.2%) patients and the age group ≥ 51 years were 2 (0.8%). It is also, noted that in male patients the peak age of onset was in the ages 21-30 years with 35 (13.3%).

Ninety (96%) of the cases occurred in the age of 40 years and less than 40 years.

The difference between values of gender related to age groups is statistically significant (p = 0.003), (Table 2).

Also, Table 2 reveals that in 26 (9.9%) patients, their families had a history of the disease. They were 15 (5.7%) females and 11 (4.2%) males, (p-value > 0.05).

Most alopecia areata patterns were patchy with 220 (83.3%) followed by patchy + ophiasis with 27 (10.2%), alopecia universalis 8 (3%), alopecia totalis 7 (2.7%) and alopecia ophiasis 2 (0.8%), (p-value > 0.05); see images 1 and 2.

Table 2 also illustrates the number of patches. Multiple patches were the most common type 161 (61.0%) followed by single patches 88 (33.3%), see images 3 and 4.

Pitting was the most common presenting nail changes, being found in 30 (11.6%) patients followed by trachyonychia in 6 (2.4%) patients and were more common in male patients 5 (2.0%) cases.

We found 3 (1.2%) cases of leuconychia and 2 (0.8%) cases of Beau's line and both nail changes were in female patients.

The difference between values of gender related to nail changes is statistically not significant (p > 0.05), as shown in Table 2.

Table 2: Distribution of demographic and clinical characteristics related to sex of the study patients (n=264)

Variables	Sex				Total		p-value
	Females		Males				
	No	(%)	No	(%)	No	(%)	
Age group:							
1-10	73	(27.6)	24	(9.1)	97	(36.7)	
11-20	42	(15.9)	22	(8.2)	64	(24.1)	P = 0.003
21-30	28	(10.6)	35	(13.3)	63	(23.9)	
31-40	15	(5.7)	15	(5.7)	30	(11.4)	
41-50	4	(1.6)	4	(1.6)	8	(3.2)	
≥51	1	(0.4)	1	(0.4)	2	(0.8)	
Family history:							
Yes	15	(5.7)	11	(4.2)	26	(9.9)	P = 0.402
No	148	(56.0)	90	(34.1)	238	(90.1)	
Pattern:							
Patchy	136	(51.5)	84	(31.8)	220	(83.3)	
Patchy + ophiasis	16	(6.0)	11	(4.2)	27	(10.2)	P = 0.67
Universalis	4	(1.5)	4	(1.5)	8	(3.0)	
Totalis	6	(2.3)	1	(0.4)	7	(2.7)	
Ophiasis	1	(0.4)	1	(0.4)	2	(0.8)	
Patches number:							
Multiple	97	(36.8)	64	(24.2)	161	(61.0)	
Single	56	(21.2)	32	(12.1)	88	(33.3)	P = 0.483
Universalis	4	(1.5)	4	(1.5)	8	(3.0)	
Totalis	6	(2.3)	1	(0.4)	7	(2.7)	
Nail change:							
Pitting	19	(7.2)	11	(4.4)	30	(11.6)	
Trachyonychia	1	(0.4)	5	(2.0)	6	(2.4)	P = 0.081
Leuconychia	3	(1.2)	0	(0.0)	3	(1.2)	
Beau's line	2	(0.8)	0	(0.0)	2	(0.8)	
No change	138	(52.1)	85	(31.9)	223	(84.0)	

Associated diseases were found in 27 (10.8%) patients. Atopic dermatitis 11 (4.4%), Hypothyroid 7(2.8%), were the most common comorbidities, followed by vitiligo in 4 (1.6%) patients, hyperthyroidism and diabetes mellitus each were found in 2 (0.8%) patients. Down syndrome was found in 1 (0.4%) patient, as shown in Table 3.

Also, Table 3 reveals the most site involvement is the scalp 237 (89.2%) followed by a few percentages of different sites: universalis 8 (3.2%), scalp + eye brows 6 (2.4%), scalp + barbae + moustache 6 (2.4%), scalp + barbae 5 (2.0%) and scalp + eye brows + moustache 2 (0.8%).

Table 3: Frequency of associated diseases and site involvement of patients with alopecia areata (n=264)

Variables	No	%
Associated diseases:		
Atopic dermatitis	11	4.4
Hypothyroid	7	2.8
Vitiligo	4	1.6
Hyperthyroidism	2	0.8
Diabetes Mellitus	2	0.8
Down syndrome	1	0.4
Non	237	89.2
Site involvement:		
Scalp	237	89.2
Universalis	8	3.2
Scalp + eyebrows	6	2.4
Scalp + barbae + moustache	6	2.4
Scalp + barbae	5	2.0
Scalp eye brows + moustache	2	0.8

Table 4 shows the mean disease duration at the time of presentation for all patients was 3.7 months (for females was 3.7 and for males was 3.9 months).

Table 4: Mean disease duration at the time of presentation

Sex	No (%)	Mean duration (months)	SD* (months)	Minimum (months)	Maximum (months)
Female	163 (61.7)	3.7	3.7	0.25	36
Male	101 (38.3)	3.9	3.1	0.25	14
Total	264 (100)	3.7	3.6	0.25	36

* SD = Standard deviation
P > 0.05

Image 1: Alopecia Ophiasis

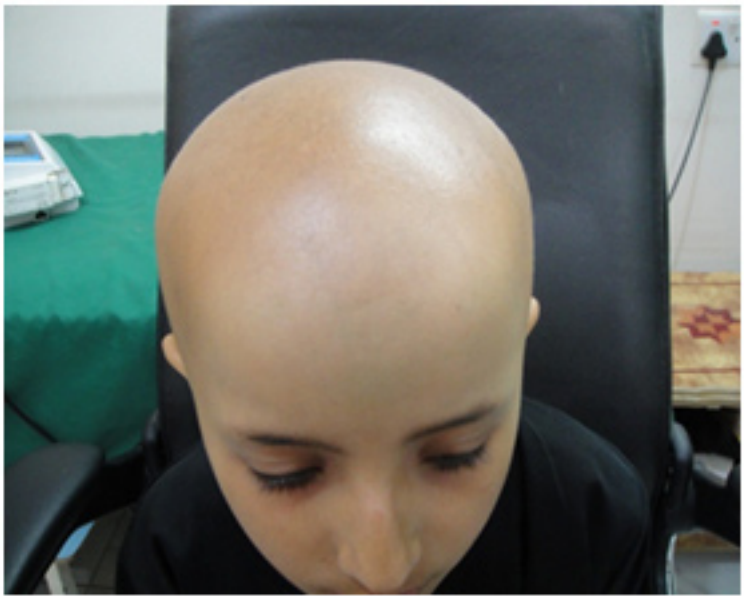

Image 2: Alopecia totalis

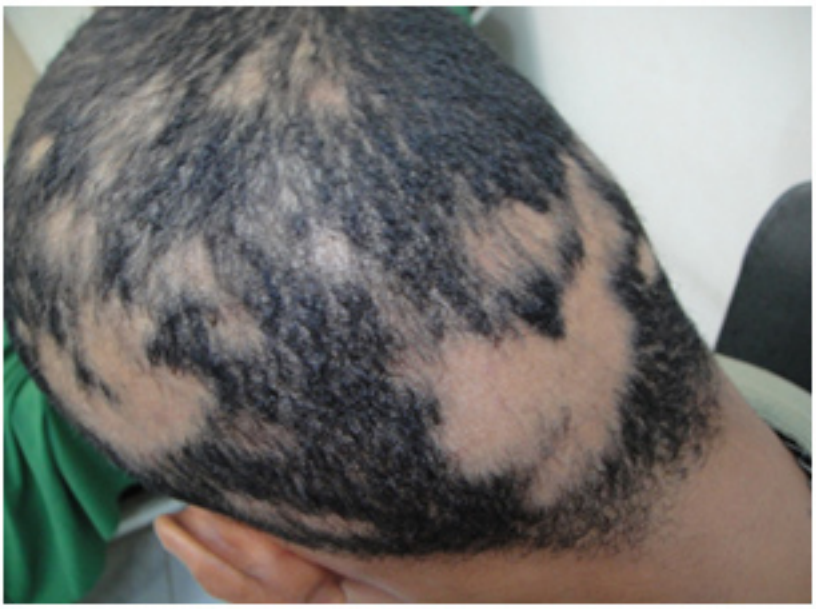

Image 3: Multiple patches alopecia areata

Image 4: Single patch alopecia areata

Discussion

AA is a condition in which hair is lost from some or all areas of the body, usually from the scalp. Commonly, AA involves hair loss in one or more round spots on the scalp. Hair may also be lost more diffusely over the whole scalp, in which case the condition is called diffuse AA [8].

Amin et al [9] reported that AA is a disease characterized by areas of non-scarring hair loss that may take the form of a single round, oval patch or even multiple patches that might become confluent. It can affect both men and women equally at any age. Children and young adults are prone more to have the disease, with 30% to 48% of the patients being affected before the age of 20 years [10].

A systematic review in the United States of America concluded that there is no difference in the incidence of AA between males and females [11].

In our study, we observed female predominance for AA, with a female to male ratio of 1.6:1. This finding is in agreement with other studies [12,13], while other studies showed male predominance [14,15,16, 17].

However, the results of the literature are disparate. Thus, for some authors, AA affects men and women with the same proportions [18,19].

In our current study we found the mean age of onset of AA was 18 years (SD = ±12.1 years) with 96% of the cases occurring in the age 40 years and less than 40 years. Our finding was in accordance with a study conducted in Saudi Arabia by Al-Khawajah [20] in which the mean age of onset was 18.9 ±11.2 years with 95% of the cases occurring before the age of 40 years.

In previous studies done in Singapore, and India, the majority of cases occurred before the age of 40 years [15, 21].

The mean age of females was 15.8 years (SD = ±11.6 years) while the mean age of males was 21.4 years (SD = ±12.1 years). The relation between means showed statistically highly significant (p = 0.000).

It is also, noted that in male patients the peak age of onset was in the ages 21-30 years with 35 (13.3%). Achar et al [22] reported similar finding from Pakistan.

In our present study (9.9%) patients, their families had a history of alopecia areata. Similar findings reported from Pakistan [23] and from Saudi Arabia [17].

Review of literature has revealed variable results [24]. Kavak et al [13] have shown a positive family history in 24.1% of their patients. In a Chinese study, incidence of family history was found in 8.4% of patients [16].

Several lines of evidence support the notion that alopecia areata has a genetic basis. In general, the prevalence of adult patients is between 0% and 8.6% [16,25], whereas in children data between 10% and 51.6% are reported [26,27].

We found in our study that most alopecia areata patterns were patchy with (83.3%) followed by patchy + ophiasis with 27 (10.2%). Similar findings to ours were reported by others [17,28].

Alshahrani et al [17] found in their study the most common type of AA in both adult and pediatric groups was the patchy type involving the scalp.
A study conducted in Saudi Arabia by Alsaiari et al [29] found the patchy alopecia areata was the most common pattern seen in (73.6%) patients followed by ophiasis in (12%) patients.

In the present study multiple patches were the most common type (60.0%) followed by single patches (33.3%).

Alopecia areata is characterized by single or multiple well demarcated patches of hair loss, typically on the scalp and occasionally in the beard, eyebrows, eyelashes, or other hair-bearing areas of the body [18,30].

In the current study, we found pitting was the most common presenting nail changes, being found in (11.6%) patients followed by trachyonychia in (2.4%) patients and more common in male patients (2.0%).

We also found, (1.2%) cases of leuconychia and (0.8%) cases of Beau's line and these two clinical pictures of nail changes were in female patients.

Ranawaka [31] reported that nail changes consisting of pitting, trachyonychia, and longitudinal ridging, were seen in (9%) and were more frequent in those with extensive disease (52%). Nail pitting was the commonest association observed.

Nail changes occur in 10.5%–38% of AA patients, with common findings including pitting, trachyonychia, and longitudinal ridging [15,21]. Nail changes correlated with disease severity, as they were found in more severe AA [15,21]. Furthermore, nail dystrophy is a poor prognostic indictor of AA [32].

In our study, the associated diseases were found in (10.4%) patients. Atopic dermatitis (4.2%), Hypothyroid (2.7%), were the most common comorbidities, followed by vitiligo in (1.6%) patients, hyperthyroidism and diabetes mellitus with each one were found in (0.8%) patients. Down syndrome was found in (0.4%) of patients.

Alopecia areata is associated with several concurrent diseases (comorbidities) including depression, anxiety, and several autoimmune diseases including thyroid disease (hyperthyroidism, hypothyroidism, goiter and thyroiditis), lupus erythematosus, vitiligo, psoriasis, rheumatoid arthritis and inflammatory bowel disease [33].

The frequency of these concurrent diseases varies between geographically separate populations, which may suggest genetic variability within these different populations [34].

Severe alopecia areata might be accompanied by nail changes [20].

Atopic diseases, such as sinusitis, asthma, rhinitis, and especially atopic dermatitis, are also more common than expected in populations with alopecia areata, and are associated with early-onset and more severe forms of hair loss [33].

In a Korean population, atopic dermatitis was significantly more common in patients with early-onset alopecia areata, whereas thyroid disease (hyperthyroidism, hypothyroidism, goiter and thyroiditis) was the most common in late-onset disease [35]; similar findings were reported by Ranawaka [31] from Sri Lanka.

In a review of 17 studies, investigators found higher odds of atopic dermatitis in patients with alopecia totalis or alopecia universalis compared to those with patchy alopecia areata [36].

In our study, we found the most site involvement is the scalp 237 (89.2%). Alsaiari et al [29] reported that the scalp was found to be the most commonly affected site (82.4%).

Previous studies reported that the scalp is the most common site of involvement, with or without involvement of other body sites (such as the eyebrows, eyelashes, and beard) [21,25].

Alopecia totalis and universalis occurred in 7.3% of AA cases and always occurred before the age of 30 years [21].

In our study, we found the mean disease duration at the time of presentation for all patients was 3.7 months (for females was 3.7 and for males was 3.9 months).
Alsaiari et al [29] reported in their study from Najran in Saudi Arabia that the duration of the disease was found to be extremely variable and the majority of the patients (67.6%) suffered from alopecia for more than 1 year.

Conclusion

AA is a form of alopecia caused by autoimmune attack of the hair follicles and sometimes the nail. We observed female predominance for AA and the mean age of onset of AA was 18 years and the most cases occurring in the age ≤ 40 years. In male patients, the peak age of onset was in the ages 21-30 years with 35 (13.3%). Family history of alopecia areata was positive among 9.9% of patients and most AA patterns were patchy with multiple patches. Nail changes, were found in (11.6%) patients and most site involvement was the scalp (89.2%). Several comorbid diseases were found among our patients including atopic dermatitis, hypothyroid, vitiligo, hyperthyroidism, diabetes mellitus and Down syndrome. This study highlights the importance of further studies in this field.

References

1. Gilhar A, Etzioni A, Paus R. Alopecia Areata. New England Journal of Medicine. 2012; 366: 1515-1525.
2. Healy E, Rogers S. PUVA treatment for alopecia areata-does it work? A retrospective review of 102 cases. Br J Dermatol. 1993; 129(1):42-4.
3. Goh C, Finkel M, Christos PJ, Sinha AA. Profile of 513 patients with alopecia areata: associations of disease subtypes with atopy, autoimmune disease and positive family history. J Eur Acad Dermatol Venereol. 2006;20:1055-1060
4. Tosti A, Whiting D, Iorizzo M, et al. The role of scalp dermoscopy in the diagnosis of alopecia areata incognita. J Am Acad Dermatol.
2008;59:64-67
5. Alkhalifah A, Alsantali A, Wang E, McElwee KJ, Shapiro J. Alopecia areata update: part I. Clinical picture, histopathology, and pathogenesis. J Am Acad Dermatol 2010;62:177-188
6. McMichael AJ. The genetic epidemiol autoimmune pathogenesis alopecia areata. J Eur. Acad. Dermatol. Venereol. 1997; 9:36-43.
7. McDonagh AJ, Tazi-Ahnini R. Epidemiology and genetics of alopecia areata. Clin. Exp. Dermatol. 2002; 27:405-409.
8. Tosti A, Bellavista S, Iorizzo M. Alopecia areata: A long term follow-up study of 191 patients. J Am Acad Dermatol. 2006; 55: 438-41.
9. Amin SS, Sachdeva S. Alopecia areata: a review. J Dermatol Dermatol Sur. 2013; 17: 37–45.
10. Mounsey AL, Reed SW. Diagnosing and treating hair loss. Am Fam Physician. 2009;80:356–362.
11. Miteva M, Villasante A. Epidemiology and burden of alopecia areata: a systematic review, Clinical, Cosmetic and Investigational Dermatology. 2015; 8: 397–403.
12. Lundin M, Chawa S, Sachdev A, et al. Gender differences in alopecia areata. Journal of Drugs in Dermatolology. 2014; 13(1): 409–413.
13. Kavak A, Yeşildal N, Parlak AH, Gökdemir G, Aydoğan I, Anul H, et al. Alopecia areata in Turkey: demographic and clinical features. J Eur Acad Dermatol Venereol. 2008; 22(8):977–981.
14. Ranawaka RR. An observational study of alopecia areata in Sri Lankan adult patients. Ceylon Med J. 2014; 59:128–131. [PubMe
15. Sharma VK, Dawn G, Kumar B. Profile of alopecia areata in Northern India. Int J Dermatol. 1996;35(1):22–27
16. Yang S, Yang J, Liu JB, et al. The genetic epidemiology of alopecia areata in China. Br J Dermatol. 2004;151(1):16–23.
17. Alshahrani AA, Al-Tuwaijri R, Abuoliat ZA, Alyabsi M, AlJasser MI, et al. Dermatology Research and Practice. 2020; 4 pages. Available at: https://doi.org/10.1155/2020/7194270

18. Madani S, Shapiro J. Alopecia areata update. J Am Acad Dermatol. 2000; 42:549-566.
19. Wasserman D, Guzman-Sanchez DA, Scott K, McMichael A. Alopecia areata. Int J Dermatol. 2007; 46(2):121-131.
20. Al-Khawajah M. Alopecia areata and associated diseases in Saudi patients. Ann Saudi Med 1991;11:651-4
21. Tan E, Tay YK, Goh CL, Chin Giam Y. The pattern and profile of alopecia areata in Singapore – A study of 219 Asians. Int J Dermatol 2002;41:748-53
22. Achar A, Rathi SK, Kumrah L, et al. Clinico-epidemiological study of alopecia areata. Journal of Pakistan Association of Dermatologists. 2018; 28 (2): 168-174
23. Ahmed I, Nasreen S, Bhatti R. Alopecia areata in children. J Coll Physicians Surg Pakistan 2007; 17: 587-90.
24. Ejaz A, Jameel K, Suhail M. Pattern and profile of alopecia areata in Pakistan. Journal of Pakistan Association of Dermatologists 2009; 19: 136-140.
25. Guzmán-Sánchez DA, Villanueva-Quintero GD, Alfaro N, McMichael A. A clinical study of alopecia areata in Mexico. Int J Dermatol. 2007;46:1308–1310.
26. Rocha J, et al. Alopecia areata: a retrospective study of the paediatric dermatology department (2000–2008) Acta Med Port. 2011;24:207–214.
27. Nanda A, Al-Fouzan AS, Al-Hasawi F. Alopecia areata in children: a clinical profile. Pediatr Dermatol. 2002;19:482–485.
28. Panda M, Jena M, Patro N, Dash M, Jena AK, Mishra S. Clinico-epidemiological profile and therapeutic response of alopecia areata in a tertiary care teaching hospital. J Pharm Sci Res. 2014;6: 169-74.
29. Alsaiari S, Fatani M. Demographic and clinical profile of alopecia areata in Makkah, Saudi Arabia and its impact on quality of life. International Journal of Medical and Health Research. 2018; 4(3): 61-67
30. Papadopoulos AJ, Schwartz RA, Janniger CK. Alopecia areata. Pathogenesis, diagnosis, and therapy. Am J Clin Dermatol. 2000;1(2):101–105.
31. Ranawaka RR. An observational study of alopecia areata in Sri Lankan adult patients. Ceylon Med J. 2014; 59:128–131
32. Hordinsky MK. Overview of alopecia areata. J Investig Dermatol Symp Proc. 2013;16(1):S13–S15.
33. Chu SY, Chen YJ, Tseng WC, Lin MW, Chen TJ, et al. Comorbidity profiles among patients with alopecia areata: the importance of onset age, a nationwide population-based study. J Am Acad Dermatol. 2011; 65:949–956.
34. Pratt CH, King LE, Messenger AG, Christiano AM, Sundberg JP. Alopecia areata. Nat Rev Dis Primers. 2017; 3: 1-37
35. Lee NR, et al. Differences in comorbidity profiles between early-onset and late-onset alopecia areata patients: a retrospective study of 871 Korean patients. Ann Dermatol. 2014; 26:722–726.
36. Mohan GC, Silverberg JI. Association of vitiligo and alopecia areata with atopic dermatitis: a systematic review and meta-analysis. JAMA Dermatol. 2015; 151:522–528.