

Efficacy of aromatherapy in the treatment of localized alopecia areata: A double-blind placebo controlled study

İbrahim ÖZMEN (*), Ercan ÇALIŞKAN (**), Ercan ARCA (**), Gürol AÇIKGÖZ (**), Erol KOÇ (**)

SUMMARY

Alopecia areata is an autoimmune disease of the hair follicle which is characterized by round or oval patches of non-scarring hair loss. In this double-blind randomized controlled study we aimed to evaluate the efficacy of aromatherapy (Revigen® Areata solution) in the treatment of localized alopecia areata. There were two groups in this study, the aromatherapy group consisted of twenty patients treated with aromatherapy (essential oils like thyme, rosemary, lavender, evening primrose oil and cedrus in a mixture of carrier oils like jojoba, grape seed, almond, lemon and soy oils). The placebo group consisted of 20 patients treated with only carrier oils. Each group was treated daily for three months. Hair growth rate (0-4 score), clinical assessment (0-4 score) and the size of the affected area (cm²) were evaluated before the treatment, at the end of the treatment and two months after the last treatment. At the end of the follow-up period, mean hair growth rates were 2.65±1.37 and 1.11±0.5; and clinical assessment were 2.65±1.28 and 1.11±0.58 in aromatherapy and placebo groups respectively. Mean size of affected area was decreased from 6.54±10.18 to 3.40±7.62 in aromatherapy group and 6.73±8.88 to 5.30±7.26 in placebo group. All observed differences between these treatment groups were statistically significant (p<0.05). Aromatherapy is significantly more effective than placebo and safe for the treatment of localized alopecia areata.

Key Words: Alopecia areata, aromatherapy, essential oils

ÖZET

Lokalize alopesi areata tedavisinde aromaterapinin etkinliği: Çift kör placebo kontrollü çalışma

Alopesi areata yuvarlak veya oval şekilli, skar bırakmayan saç dökülmesi ile karakterize kıl follikülünün otoimmün bir hastalığıdır. Bu çift-kör, randomize, kontrollü çalışmada, lokalize alopesi areata tedavisinde aromaterapinin (Revigen® Areata solüsyon) etkinliğini değerlendirmeyi hedefledik. Yirmi hasta aromaterapi ile (jojoba, üzüm çekirdeği, badem, limon ve soya yağı gibi taşıyıcı yağların karışımı içinde kekik, biberiye, lavanta, çuha çiçeği, sedir gibi esansiyel yağlar) ve 20 hasta da sadece taşıyıcı yağlarla üç ay boyunca tedavi edildiler. Saç büyüme hızı (0-4), klinik değerlendirme (0-4) ve etkilenen alan boyutu (cm²) tedaviden önce, tedavi bitiminde ve son tedaviden iki ay sonra hesaplandı. Takip döneminin sonunda aromaterapi ve plasebo gruplarında sırasıyla ortalama saç büyüme hızı 2.65±1.37 ve 1.11±0.5; klinik değerlendirme de sırasıyla 2.65±1.28 ve 1.11±0.58 idi. Ortalama etkilenen alan boyutu aromaterapi grubunda 6.54±10.18'den 3.40±7.62'e, plasebo grubunda da 6.73±8.88'den 5.30±7.26'a geriledi. Tedavi grupları arasında gözlenen tüm bu farklılıklar istatistiksel olarak anlamlı idi (p<0.05). Lokalize alopesi areata tedavisinde aromaterapi plaseboya göre anlamlı düzeyde etkin ve güvenli bulundu.

Anahtar Kelimeler: Alopesi areata, aromaterapi, esansiyel yağlar

Introduction

Alopecia areata (AA) is characterized by round or oval patches of non-scarring hair loss. Men and women are equally affected and the prevalence is almost equal for all ethnic groups. The etiology and pathogenesis is still uncertain, but many of the pathogenesis factors have been described such as genetics, family history, atopic state, non-specific immune and organ-specific autoimmune reactions, possible emotional stress, infectious agents and neurologic factors (1-4). Direct and indirect evidences suggest that the disease is autoimmune in nature. Histology of the active lesion reveals that the T-lymphocytes are predominantly present in the peribulbar infiltrate and presumed to play a major role in the disease process. Many patients respond to immune-modulating agents (5).

A wide range of treatments have been tried for the treatment of AA, such as topical steroids, contact sensitizers, immunomodulators and biologic response modifiers, but all of these treatments are palliative (2,3). Alternative medicine, such as garlic, onion, hypnotherapy and aromatherapy, is claimed to have hair growth promoting properties but the scientific basis is still lacking (6,7). Aromatherapy has attracted public interest in its promoting or medicinal properties. With herbal medicine as its basis, aromatherapy involves the use of essential oils and essences derived from plants, flowers and wood resins which are generally massaged into the skin (6).

The aim of this study was to evaluate the hypothesis that the use of these oils with the presence of pharmacologically active stimulants of hair growth can be therapeutic for patients with localized AA.

Material and methods

Study design: This randomized, double-blind, controlled, clinical trial was designed to assess the efficacy of aromatherapy for three months in patients with localized AA. The study was carried out between June 2007-June 2008 at Gülhane Military Medical Academy, Department of Dermatology, Ankara, Turkey. The study protocol was approved by the Institutional Ethics Committee and informed written consent was obtained from all the patients under study. The study was conducted in accordance with the guidelines for good clinical practice.

Patients: Patients who met the inclusion criteria of the study were all from the Turkish male and female population in the middle of the Anatolia. Inclusion criteria of the study were to be at least five years of age with localized AA patches. Patients were excluded for reasons such as alopecia universalis, alo-

*Çorlu Military Hospital, Dermatology Service, Tekirdağ, Turkey

**Gülhane Military Medical Academy, School of Medicine, Department of Dermatology, Etlik, Ankara, Turkey

Ayrı basım isteği: Ercan ÇALIŞKAN, M.D.

Assistant Professor,
Gülhane Military Medical Academy School of Medicine
Department of Dermatology, 06018
Etlik, Ankara, TURKEY
e-mail: ecaliskan@gata.edu.tr

Makalenin Geliş Tarihi: 22.05.2013 • Kabul Tarihi: 08.05.2014 • Çevrim İçi Basım Tarihi: 25.10.2015

pecia totalis, diffuse AA or any other dermatoses involving the scalp, known prior allergic reactions to the medication, pregnancy and women who were lactating. In addition, patients who had used any topical treatment in the previous one month and any systemic treatment in the previous two months were also excluded from the study. All patients were assigned to a treatment group upon randomization.

Materials: There were two arms of the trial. The active group received the Revigen® Areata solution (Mikro-Gen Co, Istanbul, Turkey) which has essential oils, Thyme vulgaris, Lavandula agustifolia, Rosmainus officialis and Cedrus atlantica and mixed in carrier oil which was a combination of jojoba and grape seed oils. The control group received the same carrier oils without added essential oils and the solution was identical except in smell. One of the authors (IO) explained how to use the drug and demonstrated the technique of scalp massage. The solution was massaged into the scalp for a minimum two minutes. A wrap was then applied to the head in order to support the absorption of the solution. Patients were advised to use this technique every night. In order to make the procedure double-blind, all the follow-up evaluations were done by a dermatologist who was blinded to the active and control groups.

The patients were examined at 0, 4, 8, 12 weeks of the treatment and two months after the last treatment and were asked to report any adverse effects depending on the use of medication. All reported adverse effects were recorded. Before treatment, at 4, 8, and 12 weeks and after 2 months from the last treatment (follow-up period) assessments were made by three methods: Hair regrowth rate, (0: regrowth <10%; 1: regrowth 11-25%; 2: regrowth 26-50%; 3: regrowth 51-75%; 4: regrowth ≥76%), clinical assessment (IGA) (0: no improvement; 1: mild improvement; 2: moderate improvement; 3: marked improvement; 4: complete improvement) and extent of the affected area (cm²). Standardized photographic assessments of each patient were taken before treatment, after the last treatment and at the two month follow up time-point. Digital photographs were taken with the same camera settings and lighting conditions (Cyber-shot, DSC-P72; Sony, Japan).

Statistical analysis was performed using the SPSS for windows 11.5 version. Mann-Whitney U and chi-square tests were used to compare baseline characteristics of the two groups. For analysis of study endpoints, the two groups were compared using the Mann-Whitney U test. P<0.05 was considered as statistically significant.

Results

A total of 40 patients were enrolled in the study. Twenty patients in each aromatherapy and placebo groups received the treatment for 12 weeks. All patients completed the treatment period in the aromatherapy (13 men, 7 women, age range 9-46, mean age±SD 21.1±10.5) and placebo (13 men, 7 women, age range 8-46, mean age±SD 21.8±11.8) groups. Figure-1 demonstrates the flow chart of the study and demographic characteristics of the patients are outlined on Table-1. At baseline the treatment groups were not statistically different in terms of age, sex, and mean disease duration (p>0.05).

Upon completion of the study, 3 patients (15%) had dense growth (≥76% regrowth), 9 patients (45%) had marked growth (51-75% regrowth), 3 patients (15%) had moderate growth (26-50% regrowth), 4 patients (20%) had minimal growth (11-

25% regrowth) and no change was seen in 1 patient (5%) in the aromatherapy group. In the placebo group, no patients (0%) had dense growth (≥76% regrowth) and marked growth (51-75% regrowth), 6 patients (30%) had moderate growth (26-50% regrowth), 12 patients (60%) had minimal growth (11-25% regrowth) and no change was seen in 2 patients (10%) (Figure-2).

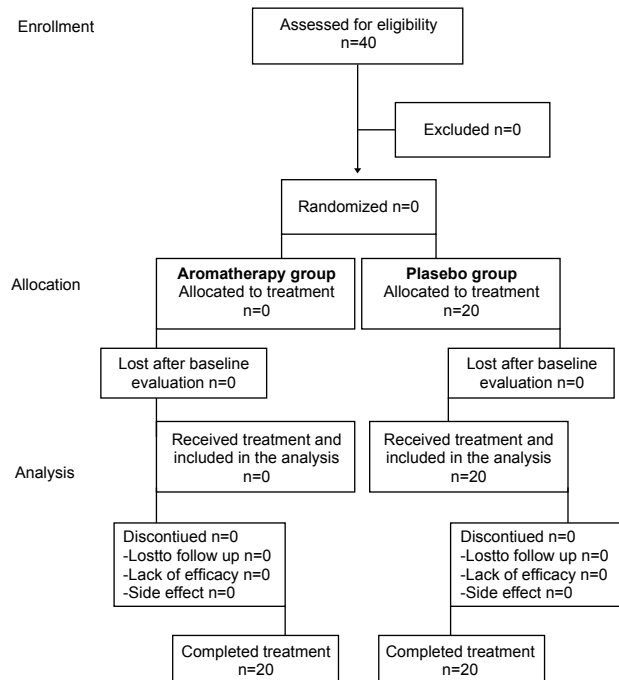


Figure 1: Flow chart of the study.

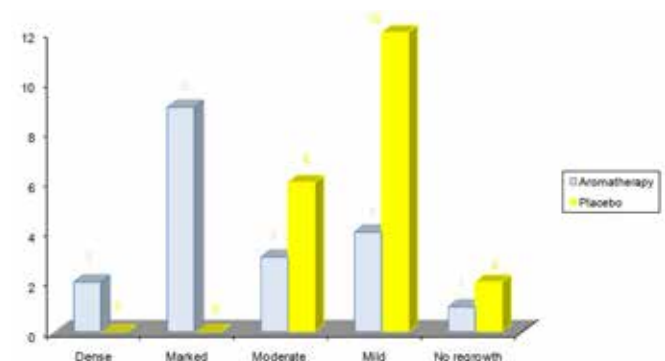


Figure 2: Hair regrowth rates at the end of follow-up period (number of patients with change in hair regrowth)

	Aromatherapy group	Placebo group	All subjects
Number of patients	20	20	40
Age (year; mean±SD*)	21.1±10.5	21.8±11.8	21.5±11.2
Age range, year	9-46	8-46	8-46
Men/women	13/7	13/7	26/14
First episode	16	16	32
Mean (SD) duration, wk	7.45	7.80	7.63
Duration range, wk	2-24	2-24	2-24
Mean affected area, cm ²	6.54±10.18	6.73±8.88	6.64±9.53
Affected area range, cm ²	0.8-38	0.4-35	0.4-38

At the end of the follow-up period, mean hair growth rates

were 2.65 ± 1.37 and 1.11 ± 0.5 ; and mean clinical assessments were 2.65 ± 1.28 and 1.11 ± 0.58 in aromatherapy and placebo groups, respectively. Mean size of affected area was decreased from 6.54 ± 10.18 to 3.40 ± 7.62 in aromatherapy group and 6.73 ± 8.88 to 5.30 ± 7.26 in placebo group. Statistically significant differences between the treatment groups were seen in hair growth rate, clinical assessment and the extent of affected area ($p=0.001$, $p=0.001$ and $p=0.007$, respectively). Baseline (3a) and end of follow up period (3b) photographs of a patient treated with aromatherapy are shown in Figure-3.



Figure 3: Baseline (a) and month 5 (b) global photographs of a patient treated with aromatherapy.

Adverse events were observed in one patient in the aromatherapy group and no patient in the placebo group. Adverse event, including burning sensation, pruritus, irritation, and erythema, was minimal on the application site and the difference between the groups was not statistically significant ($p>0.05$). No patients were withdrawn from the study because of adverse events.

Discussion

AA is a chronic inflammatory disease that affects the hair follicles, causing sudden hair loss (3,6). In most cases, the hair loss is confined to the scalp and is patchy in distribution. For the patients with a small number of circumscribed patches, estimated spontaneous remission within 1 year is nearly 80% (8). Such patients can be managed by reassurance without any medical treatment. If treatment is needed, intralesional corticosteroids and potent topical steroids can be used in the limited forms. Dithranol and minoxidil are widely used and have shown to be safe in mild and moderate cases, but there's no convincing evidence that they are effective (5).

Patients with more severe involvement are more likely to progress to extended clinical forms, such as alopecia totalis and alopecia universalis (9). In a recent guideline reviewed by British Association of Dermatologists, contact immunotherapy was assessed as the only treatment likely to be effective in alopecia totalis and universalis, but the response rate is relatively low (5). Although the disease has no direct impact on general health, in some cases, it can negatively affect the patient's psychological integrity more than any other systemic disease. Unrealistic expectations of such patients may force the physicians to recommend more serious treatment modalities. Long-term daily treatment or high dose pulsed corticosteroids are another treatment option. In a placebo controlled trial assessing the efficacy of oral prednisolone, hair regrowth was not statistically different between the two groups (10). There is little published information on long-term outcomes and known side effects of corticosteroids are potentially severe. Taken together, limited efficacy and possible adverse effects rest-

strict the uses of systemic corticosteroids for alopecia. Psoralen plus ultraviolet A (PUVA) treatment, another option, has been shown to have lesser systemic adverse effects. However, it is doubtful that the response rate was better than the natural course of the disease. As a result of high relapse rates following the treatment, continued treatment is usually needed (11). Continued treatment, however, can lead to high cumulative UVA doses that are associated with malignancy. As a result, contact immunotherapy is the best documented treatment for severe patchy alopecia, alopecia totalis and universalis and for extensive and recurrent cases; patients should be encouraged to use wigs, in order to cope with the psychological impacts of the disease (5).

It is important to consider both positive and negative aspects of the treatment. In order to avoid the potentially harmful, expensive and time-consuming treatments, alternative medical approaches and aromatherapy may become an option, but there is a lack of scientific evidence suggesting their use in alopecia areata. As with the other forms of alternative medicine, the scientific base for the use of aromatherapy in alopecia areata is limited.

Hay et al, conducted a randomized, double-blind, controlled study to investigate the efficacy of aromatherapy with the use of thyme, rosemary, lavender, and cedarwood essential oils in the treatment of 86 patients with alopecia areata and stated that 19 (44%) of 43 patients in the aromatherapy group showed improvement compared with 6 of (15%) of 41 patients in the placebo group. They found the improvement rate was 44%, it was comparable to and possibly of more benefit than the conventional treatments (6).

Herbal therapies have attracted a great interest by the patients in our country. Many of the patients with alopecia areata, especially recurrent cases, are undertaking these herbal therapies with hopes for improvement. In order to state the scientific evidence of aromatherapy and to avoid known side effects of medical therapies, we investigated the efficacy of aromatherapy in the treatment of patients with alopecia areata. The current study is a double blind, randomized study comparing aromatherapy and placebo in the treatment of localized alopecia areata. In our study, twelve weeks of topical treatment with aromatherapy (thyme, rosemary, lavender, evening primrose oil and cedrus) led to clinically significant (moderate to dense) hair growth in up to 75% of patients, where placebo (same carrier oils with the aromatherapy) led to hair growth in up to 30% of patients. Hair regrowth was observed in 37 patients (93%) in both treatment and the control groups. However the response rate in the aromatherapy group was significantly higher than placebo group. During our study period, one adverse event was reported that was not a reason for discontinuation of treatment. These results are similar to the other studies previously discussed.

Our results show that aromatherapy (Revigen® Areata Solution) was significantly more effective than placebo (with carrier oils) and safe for the treatment of localized alopecia areata. However more extensive trials are needed to reach a definite conclusion. Few studies have been completed that investigate the efficacy and safety of aromatherapy. Safety of the investigational treatment should be accepted as more im-

portant than the efficacy of the investigational treatment when consideration is given to the fact that no current treatments have been shown to alter the long term course of the disease,. In conclusion, depending on the safety concerns, aromatherapy can be considered as a second line therapy for localized alopecia areata, where intralesional or topical corticosteroids fail to show improvement.

References

- 1- Wasserman D, Guzman-Sanchez DA, Scott K, McMichael A. Alopecia areata. *Int J Dermatol* 2007; 46: 121-31.
- 2- Madani S, Shapiro J. Alopecia areata update. *J Am Acad Dermatol* 2000; 42: 549-66.
- 3- Garg S, Messenger AG. Alopecia areata: evidence-based treatments. *Semin Cutan Med Surg* 2009; 28: 15-8.
- 4- MacDonald Hull SP, Wood ML, Hutchinson PE, Sladden M, Messenger AG. Guidelines for the management of alopecia areata. *Br J Dermatol* 2003; 149: 692-9.
- 5- Messenger AG, McKillop J, Farrant P, McDonagh AJ, Sladden M. British Association of Dermatologists' guidelines for the management of alopecia areata 2012. *Br J Dermatol* 2012; 166: 916-26.
- 6- Hay IC, Jamieson M, Ormerod AD. Randomized trial of aromatherapy: successful treatment for alopecia areata. *Arch Dermatol* 1998; 134: 1349-52.
- 7- Hajheydari Z, Jamshidi M, Akbari J, Mohammadpour R. Combination of topical garlic gel and betamethasone valerate cream in the treatment of localized alopecia areata: a double-blind randomized controlled study. *Indian J Dermatol Venereol Leprol* 2007; 73: 29-32.
- 8- Ikeda T. A new classification of alopecia areata. *Dermatologica* 1965; 131: 421-45.
- 9- 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.
- 10- Kar BR, Handa S, Dogra S, Kumar B. Placebo-controlled oral pulse prednisolone therapy in alopecia areata. *J Am Acad Dermatol* 2005; 52: 287-90.
- 11- Healy E, Rogers S. PUVA treatment for alopecia areata – does it work? A retrospective review of 102 cases. *Br J Dermatol* 1993; 129: 42-4.