COMPARISON BETWEEN THE EFFICACY OF A HERBAL DRUG AND MINOXIDIL IN THE TREATMENT OF THE TELOGEN EFFLUVIUM

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Abstract: Telogen effluvium (TE) is a self-limited, non-scarring disease that shows itself as a diffuse hair loss of the scalp that usually occurs 3 months after an acute illness. Theoretically, minoxidil solution, has been suggested as a treatment for this condition. In this study, we compared the efficacy of the minoxidil and a herbal drug containing Urtica dioica, Chamomilla, Thymus vulgaris, Equisetum avenues and Foeniculum vulgare in the telogen effluvium. It was a double – blind prospective study in that 24 patients with telogen effluvium were allocated randomly in two groups and were treated with minoxidil and the herbal drug. Data were analyzed statistically. The mean duration of telogen effluvium in the minoxidil group was 17 weeks and in the herbal drug group was 7 weeks. This difference was statistically significant. Our finding confirms the good efficacy of this herbal solution in treatment of TE.

Key words: Telogen effluvium, Minoxidil, Herbal drug.

INTRODUCTION

Telogen effluvium is an abnormality of hair cycling that results in excessive loss of telogen hairs. It is one of the most common causes of diffuse hair loss. Many cases of telogen effluvium are subclinical, so the true incidence in the community is unknown. Women are over represented among those who do present for medical attention. Common causes of telogen effluvium include drugs, thyroid disease and childbirth.

Determination of the chronology of the onset and duration of the hair loss is useful. Abrupt onset telogen effluvium is likely to be related to a specific event or trigger. Gradual onset and prolonged hair loss is more difficult to assess. Differential diagnoses include early female pattern baldness and chronic telogen effluvium, a specific clinical entity that causes chronic (longer than 6 months) idiopathic diffuse telogen hair loss [1].

Classic telogen effluvium was first described as an acute onset scalp hair loss 2–3 months after a triggering event such as a high fever, or surgical trauma [2], sudden starvation and hemorrhage [3]. In about 33% of cases of acute telogen effluvium, no trigger can be identified [4]. Emotional stress is commonly attributed as a cause of acute telogen effluvium, but the evidences are scanty and there is no study that suggests the stresses of everyday life are sufficient to induce diffuse hair loss. The functional mechanism of shedding is immediate anagen release [4].

Telogen gravidarum refers to the telogen hair loss seen 2-3 months after childbirth [5]. It is an example of delayed anagen release. Most cases of telogen...
gravidarum resolve, however, a small proportion of women may experience persistent episodic shedding that may be diffuse or localized. It has been suggested that some hairs after pregnancy may not revert to an asynchronous growth pattern seen in normal adult hair follicles [4].

While topical minoxidil is not proven to promote recovery of hair in telogen effluvium, this medication has a theoretical benefit and is well tolerated. Patients who are eager to play an active role in their treatment may choose to use minoxidil [6].

In this study, we compared the efficacy of the minoxidil and an herbal drug containing *Urtica dioica*, *Chamomilla*, *Thymus vulgaris*, *Equisetum avenues* and *Foeniculum vulgare* in the telogen effluvium.

**MATERIALS AND METHODS**

**Drugs:** 2% minoxidil (MNX) and a herbal drug containing *Urtica dioica*, *Chamomilla*, *Thymus vulgaris*, *Equisetum avenues* and *Foeniculum vulgare* were used in this trial. The products were supplied with identical packaging and randomly coded. The herbal drug and minoxidil solution were kindly provided by Cinere Company. Codes were not available to investigators until final data review.

**Patient’s population:** 24 patients with clinically confirmed telogen effluvium were allocated randomly in two groups and were treated with minoxidil and the herbal drug. Patients were clinically confirmed to have telogen effluvium. All of the patients had positive hair pull test and a known cause for their diseases. Exclusion criteria were pregnancy, sensitivity to minoxidil and sensitivity to herbal compound to patients.

**Study design:** This was a randomized, double blind trial conducted at dermatology clinic of Isfahan University of Medical Sciences and Skin Diseases and Leishmaniasis Research Center, Iran. Written consent was obtained from each patient before inclusion in the trial. Patients were randomly divided into two groups and received either 2% minoxidil or herbal solution on a double blind protocol. Patients were requested to apply 1 ml of assigned solution twice until discontinuation of abnormal hair shedding and confirmation of negative hair pull test.

**Efficacy evaluation:** Patients were evaluated every 2 weeks by a dermatologist. Exact duration of telogen effluvium was recorded in each group. In addition, any detectable side effect was also recorded.

**Statistical analysis:** The data were statistically analyzed using t-test and chi-square statistical tests. The quantitative data are presented as Mean ± SE.

**RESULTS**

The mean age of all evaluated patients was 24.2 ± 7.11 (age range = 13-43). The mean age of minoxidil
treated patients was 25.5 ± 7.90 (age range = 16-43). The mean age of herbal-solution treated patients was 22.9 ± 6.30 (age range = 13-32). There was no significant difference regarding age between the 2 groups.

It is evident from figure 1 that the mean duration of TE in the minoxidil treated group was 17 weeks (SD=7.65, range=4-24 weeks). Mean duration of TE in the herbal solution treated group was 7 weeks (SD=3.46, range=4-16 weeks). Statistical analysis reveals a significant difference between duration of TE in the 2 groups (p value = 0.001, t= -4.12). There was no significant association between the cause of TE and its duration (p>0.05).

The most common cause of telogen effluvium was pregnancy and discontinuation of the OCP in both groups. It was recognized as the cause of telogen hair loss in 20.8% of the cases. The other causes of TE were strict diet and severe weight loss (16.7%), febrile disorders (12.5%), operation (4.3%), drug (8.3%) and idiopathic (8.3%). One of the patients in the herbal solution treated group reported trivial pruritus. However, the patient completed the treatment course with this solution.

**DISCUSSION**

There is no definite treatment for telogen effluvium (TE). However, Minoxidil has a theoretical benefit and is well tolerated in patients with telogen effluvium. The efficacy of this medication for TE has been shown in mice [7]. Patients who are eager to play an active role in their treatment may choose to use minoxidil as a therapy [6].

The herbal hair tonic solution consisted entirely of aqueous extracts of *Equiestum arvense*, *Foeniculum vulgare*, *Matricaria recutita*, *Thymus vulgaris* and *Urtica dioica* [8-10]. *Equiestum arvense* extract contains many mineral elements, aminoacids, tanens, caffeic acid and colloidal silica which are essential for hair growth. The caffeic acid content has a potent vasorelaxant activity in vitro [11-13].

Fennel (*Foeniculum vulgare*) extract contains estrogenic compounds including estroles and anetholes with potent estrogenic activities. It has been used for increasing milk secretion and facilitation of birth for centuries [14,15]. Recently, it has been reported that this extract has a 5αR inhibitory activity *in vitro* [16,17]. Its aqueous extract also contains nonvolatile antioxidant compounds which have strong antiradical scavenging activity [14].

Chamomile (*Matricaria recutita*) extract is another herbal compound of this hair tonic solution that contains tanens and essential aminoacids. It has been used as a healing agent for centuries [10]. *Thymus vulgaris* extract, as another active ingredient of this product, contains thymol flavonoids which have been shown to have potent vasodilatory effects *in vitro*. It also contains free radical scavenger compounds. Its healing effects on skin injuries have been known for many years [18,19]. *Urtica dioica* extract contains vitamins B, C, K and essential fatty acids which are necessary for cell growth. It has been reported that this extract is a potent vasodilator agent by increasing nitric oxide release and opening of potassium channels in vessels [20-22]. This extract has also been approved by food and drug committee of Germany for the treatment of AGA. This extract can also be useful in the treatment of benign prostatic hyperplasia in rats by interfering with sex hormone binding globulins [23].

Although there are several *in vitro* reports demonstrating biological effects of these herbs, but the clinical trials concerning their effects are scanty. Therefore, this clinical trial was designed to compare the efficacy of herbal product, against 2% topical minoxidil solution in arresting TE in a double-blind protocol. The mean duration of TE is usually 3-6 months [24]. The results of our study showed that duration of TE is almost 2 months reduced in patients under treatment with herbal solution as compared with minoxidil. The minimum duration of TE was 4 weeks in both groups. Maximum duration of TE in the minoxidil and herbal solution treated group was 6 months and 4 months, respectively. This finding confirms the good efficacy of this herbal solution for treatment of TE. The mean age of patients in the 2 groups was almost equal. However, the sample size was small in our study. Therefore, we suggest that more extensive studies be performed to evaluate the efficacy of this herbal solution.

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