

The Cost Effectiveness Of Topical Minoxidil Therapy In Management Of Baldness

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Abstract

“Use it or loss it (Rogaine),” is an advertisement as a cure for baldness. Rogaine is a commercial name for Minoxidil. Minoxidil is a vasodilator used orally for treatment of severe to malignant hypertension. Minoxidil therapy also causes hypertrichosis (increase of body hair). This drug is used topically to treat baldness. Minoxidil is not effective in halting the receding hairline on the frontal scalp. Its antibald effect is limited to the vertex of the head. It takes several months (2-4) to regrow hair by twice-a-day application. Continuous use of Minoxidil topical solution is needed to maintain hair regrowth. Stopping Minoxidil application causes loss of newly regrown hair in 3 to 4 months. Purpose of this case study will answer several questions. Is Minoxidil effective against baldness? Is it a permanent, cost-effective remedy for baldness? What age group will get the maximum benefit from Minoxidil therapy? What types of baldness are amenable to Minoxidil therapy? Is it effective in female baldness? Is Rogaine free from remarkable adverse effects? What are the causes of baldness? Is there any permanent remedy for baldness?

CASE REPORT

A 47-year-old man was impressed by the TV commercial of “Use it or loss it” by Rogaine as a remedy for baldness. He has moderate frontal baldness and thinning of hair at the vertex of the head. After purchasing the hair regrowth treatment package, he read the leaflet inside the package and was disappointed to reveal the information that the Rogaine is not useful for frontal baldness, Rogaine efficacy depends on continuous application and discontinuation of application results in loss of reground hair. In spite of all these negative information, he continued application for 15 days. There was redness, scaliness and flakiness of the scalp at the application site observed by his wife. The person was more doubtful about the topical therapy for baldness. Application of such a drug for the rest of his life seemed to him wastage of money. He was dejected and stopped application of Rogaine.

Figure 1

Figure 1: Frontal type of baldness with receding hairline



Figure 2

Figure 2. Baldness responsive to minoxidil



OVERVIEW

Hair plays a large role in defining one's self-image. From the “snake oils” of the past to high-tech microsurgical hair plugs, men have been willing to try almost anything to spend large amounts of money in search of a cure for male pattern baldness.

Minoxidil (Rogaine) was the first drug approved by FDA for the treatment of male pattern baldness. Clearly, a large population of men eagerly awaits remedies for male pattern baldness.¹

The most common type of androgenic alopecia seems to be associated with the presence of dihydroxytestosterone (DHT), a metabolite of testosterone. Eunuchs, who have low levels of testosterone, do not lose scalp hair. In addition, men with a genetic deficiency of 5 α -reductase, the enzyme that converts testosterone to DHT, do not suffer male pattern.²

Up to two thirds of men experience androgenic alopecia, male pattern baldness is considered a normal variant rather than a disease. Although devoid of serious health aspects, patient concerns about balding should be taken seriously since one half of balding patients have psychosomatic sequelae.³ As women approach menopause the levels of estrogen and other female hormones in their bodies drop, and they too become prone to the destructive effect of DHT on hair follicles. The pattern of Female Baldness is different

from the one of men. Their hair thins and diffuses throughout the scalp, but mostly there are no bald areas. Minoxidil is also a remedy for female baldness

Pathologic causes of alopecia must also be considered in the evaluation of hair loss in men. Differential diagnosis of baldness is 1. Alopecia areata 2. Secondary syphilis 3. Congenital hair shaft disorder 4. SLE 5. Physical and chemical trauma 6. Neoplasm.⁴

DISCUSSION

Minoxidil is an effective orally active vasodilator. Minoxidil dilates arterioles. The effect seems to result from opening of potassium channels in smooth muscle membranes by the active metabolite minoxidil sulfate. The treatment appears to affect the hair follicle in three ways: it increases the span of time follicles spend in anagen, it rouses follicles that are in catagen and it enlarges the actual follicles. In effect, vellus hairs enlarge and are converted to terminal hairs, and shedding is reduced.⁵

Minoxidil is an antihypertensive drug. Like other antihypertensive drug, minoxidil has adverse effects like reflex tachycardia, palpitations, angina, headache and sweating, sodium and water retention, edema, and congestive heart failure. A potential complication of minoxidil use is the unwanted growth of facial hair if the minoxidil solution is by chance spilled or applied to facial skin. In women, minoxidil may promote facial hair growth, especially on the forehead and cheeks.⁶

The mechanism of hypertrichosis is unknown. Minoxidil is harmful to the developing baby if used during pregnancy or breast-feeding. Adverse effects of topical minoxidil are few and usually slight skin irritation or itching. Alcohol present in topical preparations may dry the scalp, resulting in dandruff. It may also cause seborrheic dermatitis. Minoxidil is highly toxic to cats and can cause death when applied to their skin.⁷

Minoxidil may affect the hair-growth cycle and increase the length and diameter of existing hair. Minoxidil slows hair loss and grows new hair. In men, the 5% solution appears to be more effective than the 2% solution, but it costs more and may have more side effects. Minoxidil demonstrates how one person's toxicity may become another person's therapy. Minoxidil may be used as a stimulant to hair growth for correction of baldness of the vertex.

In fact, the special type of baldness, which is responsive to

Minoxidil, lies around the vertex of the skull. Initial use of minoxidil topical solution may increase hair loss temporarily. The quantity of hair regrowth is different for each person. It is hard to anticipate the response to minoxidil therapy. Minoxidil topical solution will not prevent or improve hair loss which may occur with certain prescription medications, severe nutritional problems (very low body iron; too much vitamin A intake, hypothyroidism, chemotherapy, or diseases which cause scarring of the scalp. In addition, Minoxidil topical solution will not improve hair loss due to deep burns of the scalp. It is effective to manage androgenic alopecia. It is unlikely anyone will be able to grow back all his or her hair. Minoxidil is not a miracle remedy for baldness. This is a temporary treatment for baldness and not a permanent cure. Another drawback is that it must be used for life or any regrown hair will fall out. In addition, only those people losing hair on the vertex, not in the front, are candidates for regrowth.⁸

People who are using steroid or steroid like drugs, petroleum jelly (Vaseline), or tretinoin (Retin-A) on their scalps should consult their doctors prior to using minoxidil. The use of any of the products in conjunction with minoxidil may cause excessive minoxidil absorption and increase the risk of side effects.⁹

Topical Minoxidil therapy for baldness is not a prescription item and health insurance does not cover it.

Minoxidil proves helpful in halting hair loss and/or stimulating new hair growth, its use becomes a lifetime obligation. If normal application of minoxidil is stopped, all results of therapy will be rapidly lost over the next 3 to 6 months.

Topical minoxidil in either 2% or 5% solution is most effective in persons with new onset of hair loss due to androgenetic alopecia and relatively small areas of hair loss. Minoxidil is less effective when hair loss is old or large in area. Thus, early use of minoxidil is indicated to prevent progression of small areas of male or female pattern hair loss. Minoxidil seems to work best on people younger than 30 years of age who have been losing hair for fewer than 5 years.

Exceeding the recommended dosage does not produce greater or faster hair growth and may cause increased side effects. One must use minoxidil for at least 4 months, and possibly for up to 1 year, before you see any effect.¹⁰

In some cases, minoxidil may initially cause an increase in

hair loss. This is called shedding and is seen as a long-term positive effect during hair loss treatment since the shedded hair strands will regrow within a few months with renewed strength.¹¹

The only permanent remedy for hair restoration is hair transplantation. This is a cosmetic surgical procedure. Hair from the occipital scalp (the head skin of the back of the head) is transplanted to the bald area. In an expert hand, it gives permanent result.¹²

CONCLUSION

The efficacy of Minoxidil Topical Solution in the management of baldness is very limited because it works in particular type of baldness (figure 2). These drugs are most useful in preventing further hair loss, and regrowth of a full head of hair should not be expected. It is not cost effective at all. It needs continuous application because stopping application of Minoxidil will cause lose of the regrown hair. The minoxidil therapy will less effective in a older person over the age of 30 and having a bald for many years. Therefore, realistic expectation and compliance is very important in Minoxidil treatment. The exact manner in which Minoxidil works is unknown. Both men and women benefit from the use of Minoxidil.

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