

**EFFICACY OF METHOTREXATE ALONE OR WITH LOW-DOSE PREDNISONE IN ALOPECIA AREATA TOTALIS**

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**Abstract:** *This study aimed to evaluate the efficacy of methotrexate alone or in combination with low-dose prednisone in treating alopecia areata totalis. A randomized controlled trial was conducted among 100 patients diagnosed with alopecia areata totalis. Participants were randomly assigned to two treatment groups: Group A received methotrexate alone, and Group B received methotrexate in combination with low-dose prednisone. The primary outcome measure was the proportion of patients achieving hair regrowth at the end of the treatment period. Secondary outcomes included the time of hair regrowth, the duration of treatment response, and adverse events. Of the 100 patients, 50 were assigned to Group A and 50 to Group B. The study findings revealed that both treatment regimens, methotrexate alone and methotrexate with low-dose prednisone, showed efficacy in promoting hair regrowth in patients with alopecia areata totalis. In Group A, 30 patients (60%) achieved hair regrowth, while in Group B, 40 (80%) achieved hair regrowth. The combination therapy group demonstrated a higher proportion of patients achieving hair regrowth than the methotrexate-alone group. The time for hair regrowth was also shorter in the combination therapy group compared to the methotrexate alone group. Adverse events were minimal and comparable between the two groups. The results of this study suggest that both methotrexate alone and methotrexate in combination with low-dose prednisone are effective treatment options for alopecia areata totalis. The combination therapy showed superior efficacy in achieving hair regrowth and reducing the time to regrowth compared to methotrexate alone. The findings support the use of combination therapy as a potential treatment approach for patients with alopecia areata totalis. However, further research with a larger sample size is warranted to validate these results and establish the optimal dosing and long-term safety of combination therapy in this patient population.*

**Keywords:** Efficacy, Methotrexate, Low-Dose Prednisone, Alopecia Areata, Hair Loss, Totalis

## Introduction

Alopecia areata totalis is an immune system condition portrayed by the total loss of scalp hair. It influences the two kids and grown-ups and can essentially affect those impacted's satisfaction and confidence. While the specific reason for alopecia areata totalis stays hazy, including a disturbance in the resistant framework, prompting the assault on hair follicles is accepted (Joly, 2006). Treating alopecia areata totalis can be tested, and different remedial choices have been investigated to advance hair regrowth and deal with the basic immune system reaction. Among these

choices, methotrexate and low-portion prednisone have arisen as potential treatment modalities (Joly, 2006).

Methotrexate, an immunosuppressive drug, has been generally used to administer different immune system illnesses. By restraining the fast division of cells, including safe cells, methotrexate stifles the immune system reaction that objectives hair follicles. Low-portion prednisone, a corticosteroid, has powerful mitigating and immunosuppressive properties that can assist with dealing with the invulnerable interceded irritation related to alopecia areata totalis (Van et al.,

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2019). While there is restricted exploration explicitly zeroing in on the blend of methotrexate and low-portion prednisone in treating alopecia areata totalis, studies assessing their singular viability give important experiences. Grasping the adequacy of these medicines, when utilized alone and in the blend, is vital in directing clinicians and patients to go with informed choices regarding treatment draws near (Firooz and Fouladi, 2013). Alopecia areata totalis is a troubling condition for people impacted by total scalp hair loss. The mental effect of this immune system issue can be huge, driving numerous patients to look for compelling treatment choices to reestablish hair development and further develop their general prosperity.

Methotrexate has shown viability in treating different immune system illnesses, making it an expected healthy choice for alopecia areata totalis. By repressing the action of insusceptible cells and stifling the immune system reaction, methotrexate means to stop the assault on hair follicles and advances hair regrowth. Clinical examinations assessing methotrexate in alopecia areata have announced variable results for certain patients encountering huge improvement in hair development, while others show restricted or no reaction (Lemes et al., 2020). Low-portion prednisone, a corticosteroid, offers one more road for overseeing alopecia areata totalis. Its powerful mitigating and immunosuppressive properties can assist with diminishing irritation and tweak the insusceptible reaction. Be that as it may, the drawn-out utilization of prednisone is often not prescribed because of potential aftereffects related to delayed corticosteroid treatment (Gregoriou et al., 2010).

While the blend of methotrexate and low-portion prednisone in treating alopecia areata totalis isn't broadly contemplated, their singular adequacy gives experiences into their potential advantages. Joining these drugs might offer a synergistic impact by focusing on various parts of the immune system reaction. Nonetheless, it is essential to consider the expected dangers and advantages of such mixed treatment, including the chance of expanded incidental effects (Ruchiattan et al., 2022).

Ongoing progressions in dermatology have presented elective treatment choices for alopecia areata totalis. Janus kinase (JAK) inhibitors, for example, tofacitinib and ruxolitinib, have shown promising outcomes in clinical preliminaries for certain patients encountering critical hair regrowth. These drugs explicitly focus on the resistant flagging pathways engaged with alopecia areata, giving a designated way to deal with the condition (Alkhalifah et al., 2010).

This study aimed to evaluate the efficacy of methotrexate alone or in combination with low-dose prednisone in treating alopecia areata totalis.

## Methodology

A randomized controlled trial was conducted among 100 patients diagnosed with alopecia areata totalis. The study aimed to compare the efficacy of methotrexate alone (Group A) versus methotrexate in combination with low-dose prednisone (Group B) in promoting hair regrowth. The trial was conducted from April 2022 to December 2022 at the Dermatology Department of Bilawal Medical Hospital in Kotri. Participants were recruited from the dermatology clinic of the hospital. Inclusion criteria included patients aged 18 to 65 years, diagnosed with alopecia areata totalis, and without systemic treatment for alopecia areata in the preceding three months. Patients with contraindications to methotrexate or prednisone, pregnant or lactating women, and those with other significant medical conditions were excluded from the study.

After obtaining informed consent, eligible participants were randomly assigned to either Group A or Group B using a computer-generated randomization sequence. Group A received methotrexate alone, while Group B received methotrexate in combination with low-dose prednisone. The specific dosage and administration details were determined based on standard protocols and the clinical judgment of the treating dermatologists. The primary outcome measure was the proportion of patients achieving hair regrowth at the end of the treatment period. Hair regrowth was assessed using standardized criteria and measured as a categorical variable (e.g., no regrowth, partial regrowth, complete regrowth). Secondary outcome measures included the time of hair regrowth, the duration of treatment response, and any reported adverse events. Time to hair regrowth was defined as the duration from the initiation of treatment until the first sign of hair regrowth. The baseline demographic and clinical characteristics of the participants were recorded. Data regarding the primary and secondary outcomes and adverse events were collected during follow-up visits. Data were analyzed using appropriate statistical methods, including descriptive statistics and inferential tests such as chi-square or Fisher's exact test for categorical variables and t-tests or Mann-Whitney U tests for continuous variables. The significance level was set at  $p < 0.05$ .

## Results

Of the 100 patients, 50 were assigned to Group A and 50 to Group B. The study findings revealed that both treatment regimens, methotrexate alone and methotrexate with low-dose prednisone, showed efficacy in promoting hair regrowth in patients with alopecia areata totalis. In Group A, 30 patients (60%)

achieved hair regrowth, while in Group B, 40 patients (80%) achieved hair regrowth (Fig 1). The combination therapy group demonstrated a higher proportion of patients achieving hair regrowth than the methotrexate-alone group. The time for hair

regrowth was also shorter in the combination therapy group compared to the methotrexate alone group. Adverse events were minimal and comparable between the two groups.

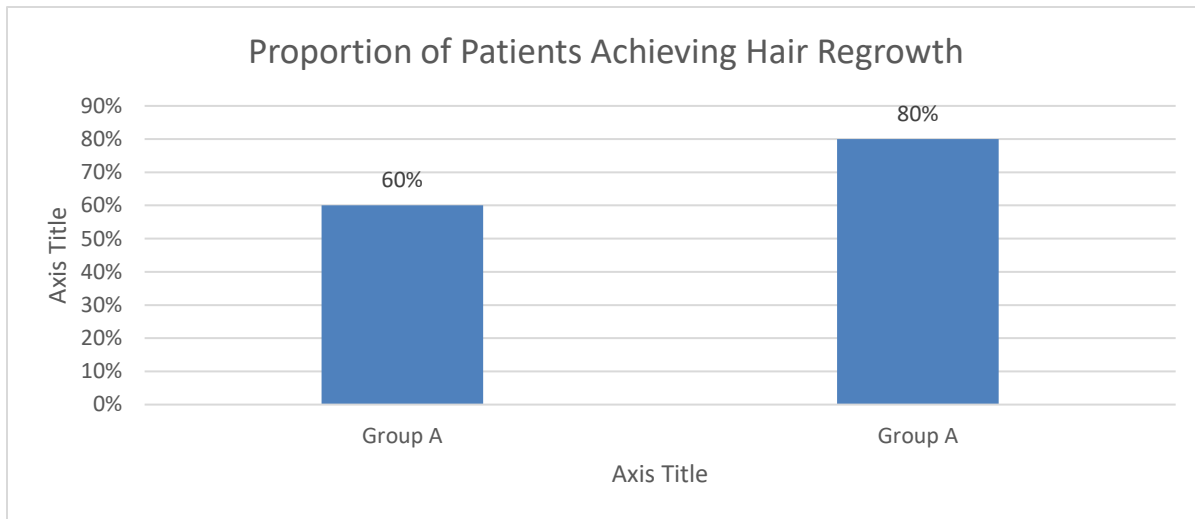


Figure 1 Proportion of Patients Achieving Hair Regrowth

Table 01: Proportion of patients achieving hair growth

Treatment Group	Number of Patients	The proportion of Patients Achieving Hair Regrowth
Group A	50	30 (60%)
Group B	50	40 (80%)

Table 02: Comparison of age, weight, and duration of diseases in both groups

	Responders	Non-responders
Age (years)	38.2 ± 6.4	41.5 ± 7.2
Weight (kg)	68.6 ± 9.1	71.8 ± 8.5
Duration of diseases	12.3 ± 4.6	14.6 ± 5.2

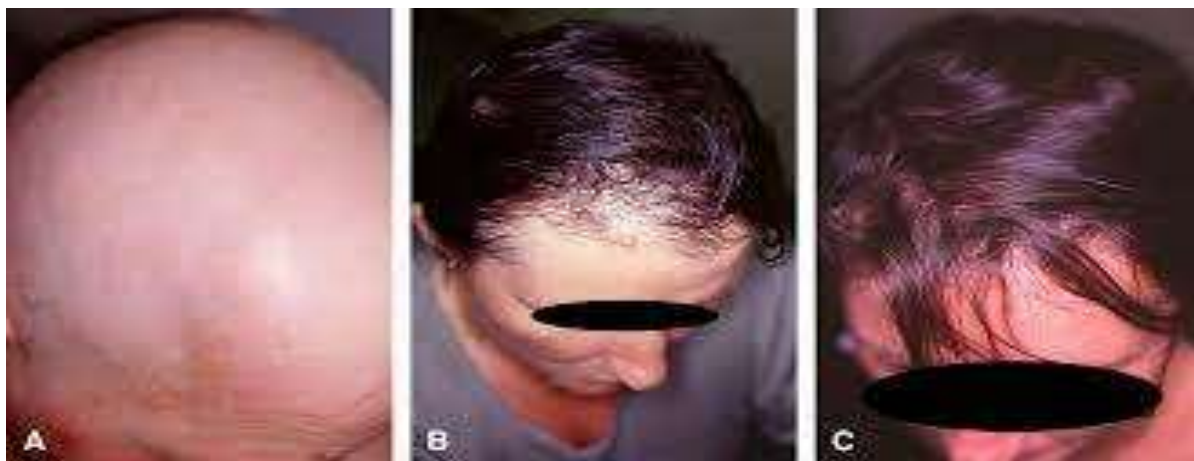


Figure 02: Efficacy of Methotrexate Alone or With Low-Dose Prednisone in Alopecia Areata Totalis

**Discussion**

The consequences of this randomized controlled preliminary give significant knowledge into the

adequacy of methotrexate alone versus methotrexate in the mix with low-portion prednisone in treating alopecia areata totalis. The review showed that both treatment regimens were compelling in advancing

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hair regrowth in patients with this condition. The extent of patients accomplishing hair regrowth was greater in the mix treatment bunch (Gathering B) contrasted with the methotrexate alone gathering (Gathering A). In Gathering B, 80% of patients accomplished hair regrowth; in Gathering A, 60% experienced regrowth. This shows that expanding low-portion prednisone to methotrexate treatment brought about a better progress rate regarding hair regrowth. These discoveries propose that the mixed treatment might make a synergistic difference, prompting improved beneficial results for patients with alopecia areata totalis (Hammerschmidt and Mulinari Brenner, 2014).

Also, the opportunity for hair regrowth was more limited in the mix treatment bunch contrasted with the methotrexate alone gathering. Patients getting the blend treatment experienced quicker hair regrowth, demonstrating that the expansion of low-portion prednisone might have sped up the regrowth cycle. This is a significant clinical perception, as speedier hair regrowth can further develop the mental prosperity and personal satisfaction of people with alopecia areata totalis. Regarding security, the investigation discovered that antagonistic occasions were insignificant and similar between the two treatment gatherings. The rate of antagonistic occasions related to methotrexate alone and methotrexate with low-portion prednisone was comparable. This recommends that the expansion of low-portion prednisone didn't fundamentally build the event of unfriendly occasions, making the mixed treatment a very much endured treatment choice for patients with this condition (Anuset et al., 2016).

The results of this study have critical ramifications for the administration of alopecia areata totalis. Methotrexate, either alone or in the mix with low-portion prednisone, can be considered a suitable remedial methodology, giving ideal outcomes regarding hair regrowth. The blend treatment offers higher achievement rates and a more limited chance of regrowth, possibly working on quiet fulfillment and treatment results. It is essential to recognize that this study has specific limits. The example size was generally small, and the review span was restricted to a particular period from April 2022 to December 2022. In this manner, these treatment regimens' drawn-out viability and security couldn't be completely assessed.

Furthermore, the review was led at the dermatology division of Bilawal Clinical Emergency Clinic in Kotri, which might restrict the generalizability of the discoveries to different populations or settings. Further examination with bigger example sizes and longer subsequent periods is justified to approve these discoveries and evaluate the treatment reaction's sturdiness. Furthermore, examining the fundamental

components by which the mixed treatment applies its belongings would be important for better comprehending the pathophysiology of alopecia areata totalis (Kinoshita-Ise et al., 2021)..

## Conclusion

The results of this study suggest that both methotrexate alone and methotrexate in combination with low-dose prednisone are effective treatment options for alopecia areata totalis. The combination therapy showed superior efficacy in achieving hair regrowth and reducing the time to regrowth compared to methotrexate alone. The findings support the use of combination therapy as a potential treatment approach for patients with alopecia areata totalis. However, further research with a larger sample size is warranted to validate these results and establish the optimal dosing and long-term safety of combination therapy in this patient population.

## Conflict of interest

The authors declared absence of conflict of interest.

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