

Intravenous Glutathione Can Improve Scalp Psoriasis: A Serendipity

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ABSTRACT

Psoriasis vulgaris is a chronic inflammatory disease with a relapsing and remitting course and no curative treatment till date. It can affect various body parts including scalp. Scalp psoriasis may be the initial and/or only presentation of psoriasis in an individual and may lead to significant morbidity due to excessive scaling, erythema and itching. Psoriasis has been shown to be associated with an increase in oxidative stress and decreased glutathione (GSH) levels both systemically and locally. We herein present a unique case of scalp psoriasis that responded favourably to intravenous glutathione which was given for some other indication.

Case Report

A 35-years-old lady, known case of scalp psoriasis for last two years (Figures 1A & 1B), was given 5000 mg of intravenous Glutathione as a skin whitening agent (off-label indication). Within two weeks of receiving the injection she claimed almost 40-50% improvement in scalp psoriasis in the form of partial regression of lesions and significant reduction in scaling and itching; however, started developing new lesions over scalp after three months. She was given a second dose of the same injection after three months and we observed similar improvement in her scalp psoriasis (Figures 2A & 2B). She had stopped all the topical medications for scalp psoriasis after the first dose of injection GSH and was only applying plain coconut oil occasionally. She maintained partial remission till the last follow-up at five months after the second dose. The temporal profile of Glutathione administration and improvement in scalp psoriasis twice following that ruled out co-incidental spontaneous improvement of her condition [1,2].

Oral GSH-enhancing nondenatured bioactive whey protein isolate supplementation has been shown to improve psoriasis vulgaris irrespective of patient being on treatment for psoriasis. Prussick R et al showed an improvement in Psoriasis Area and Severity Index (PASI) over three-month study period. Whey protein supplementation was used as monotherapy in few of the patients who showed improvement. Also, the ongoing therapies (NBUVB, topicals) were not increased during the study, thereby signifying improvement subsequent to the addition of whey protein isolate [3]. Dimethyl fumarate used in treatment of psoriasis can interrupt various specific points in its pathogenesis involving multiple immune system cell types and the affected keratinocytes. Although the full mechanism of action is unknown, it can activate nuclear factor erythroid 2-related factor 2 (Nrf2), modulate GSH and inflammasome to block correct antigen presentation by dendritic cells thereby signifying the role of GSH in improving psoriasis.

Oral GSH supplementation has negligible effect on cellular GSH levels and hence GSH precursors like N-acetylcysteine are preferred. Majority of antioxidants like Vit C, E, selenium etc. depend on GSH for their functioning and it is the only antioxidant that does not become a free radical by itself once it donates a free electron [3]. The response to treatment in psoriasis vulgaris may be correlated with the levels of antioxidant GSH activity which

may be increased in cases who are not or poorly responding to therapy. Cysteine, a sulphur containing amino acid is one of the most important contributors to GSH production and diets lacking this amino acid may lead to GSH deficiency and excessive oxidative stress which may be the underlying contributory mechanisms in various diseases including psoriasis vulgaris [3-6].

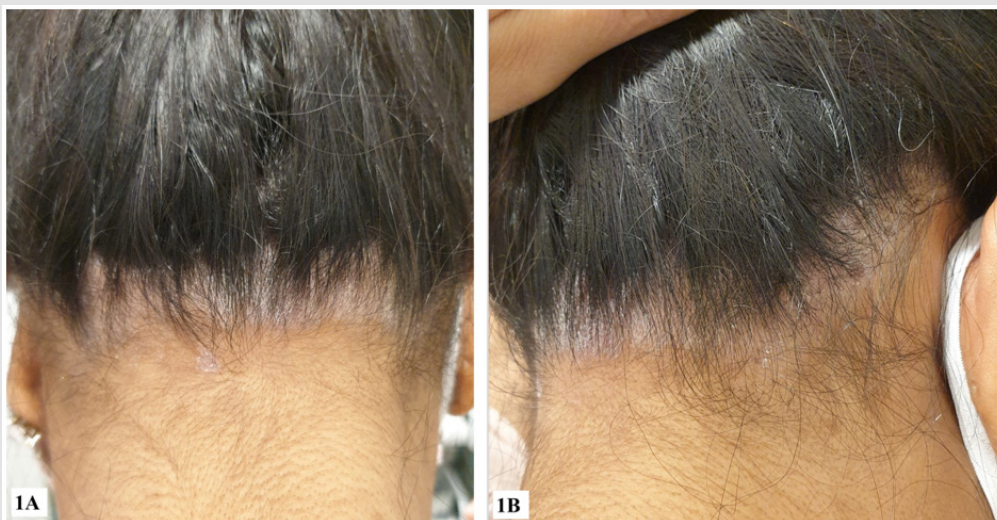


Figure 1: Scalp psoriasis prior to administration of intravenous Glutathione (1A, 1B).



Figure 2: Scalp psoriasis three weeks after administration of intravenous Glutathione (2A, 2B).

Conclusion

To the best of our knowledge, this is the first report of intravenous GSH which was used as an off-label skin whitening agent, leading to improvement in scalp psoriasis. Also, considering the previous reports of improvement of psoriasis with GSH-enhancer whey protein isolates, we hereby propose that this therapy may be used in future as an adjunct to the conventional first-line therapies in scalp psoriasis in cases of sub-optimal response with a better side-effect profile and an acceptable effect of skin lightening. The authors agree that this requires further large-scale trials and cannot be claimed superior to the existing first-line conventional therapies.

Funding Sources

None.

Conflicts of Interest

None to declare.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Acknowledgement

The patient in this manuscript has given written informed consent to the publication of his case details and photographs.

Author Contribution Statement

The manuscript has been read and approved by all the authors and each author believes that the manuscript represents honest work.

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