



Symposium

# Symposium editorial: Immunotherapy in dermatology

Betsy Ambooken

Department of Dermatology, Government Medical College, Thrissur, Kerala, India.

**\*Corresponding author:**

Betsy Ambooken,  
Department of Dermatology,  
Government Medical College,  
Thrissur, Kerala, India.

[joebetsy123@gmail.com](mailto:joebetsy123@gmail.com)

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Immunotherapy acts by targeting or manipulating the components of the immune system.<sup>[1]</sup> This therapeutic approach has found applications in the management of malignancies as well as infectious diseases, including the most recent fight of humankind against coronavirus disease-2019.<sup>[1]</sup> A strategy that combines conventional treatment and immunotherapy can be the future protocol in diseases such as malignancies, autoimmune diseases, and infections.<sup>[1]</sup>

The era of immunotherapy in the management of cancers began in the 1970s with the introduction of bacillus Calmette–Guerin instillation therapy for bladder cancer.<sup>[2]</sup> Immunotherapy in malignancy has traveled a long way since then and is now considered as the therapeutic option in many recurrent, inoperable, and metastatic cancers. In malignancy (especially during the initial stages), often the body's immune system fails to recognize malignant cells as abnormal or fails to mount an effective immune response against the malignant cells, despite recognizing them as abnormal.<sup>[3]</sup> Immunotherapy agents provide beneficial effects by stimulating the host's anti-tumor response by different mechanisms. They attain a therapeutic response by increasing the number of effector T cells, producing soluble mediators that enhance anti-tumor immune response, or decreasing the host's suppressor mechanisms.<sup>[3]</sup>

Immunotherapy is broadly classified into passive and active immunotherapy.<sup>[1]</sup> Administration of *ex vivo* generated immune elements such as antibodies and immune cells to enhance the host's immunity (without stimulating the individual's immune system) comes under the realms of passive immunotherapy.<sup>[1]</sup> Active immunotherapy refers to therapeutic approaches that induce a response by the immune system of the patient, which in turn produces effector cells such as antibodies and T cells.<sup>[1]</sup>

In the management of autoimmune diseases, immunotherapy acts by promoting immunosuppression or reducing inflammation.<sup>[4]</sup>

Immunotherapy could be the answer to emerging and reemerging infections as well as in overcoming the challenges posed by the drug resistance acquired by known pathogens.<sup>[1]</sup> Infectious pathogens, similar to malignant cells may suppress host defenses, may create a favorable environment for themselves within the host, or modulate the metabolic functions of the host to support their nutritional requirements.<sup>[1]</sup> In infections, immunotherapy exerts its beneficial effect by modulating the immune system to target and eliminate pathogens or diseased host cells.<sup>[1]</sup>

As far as dermatology diseases are concerned, immunotherapy has revolutionized the treatment of malignant melanoma and non-melanoma skin cancers.<sup>[5,6]</sup> It has been found effective in diseases such as alopecia areata and vitiligo that have an autoimmune basis.<sup>[7,8]</sup> The concept of "antigenic competition" was proposed to explain the mechanism of topical immunotherapy in alopecia areata.<sup>[7]</sup> It is postulated that contact sensitizers such as diphenylcyclopropanone, dinitrochlorobenzene, and squaric acid dibutyl ester induce an allergic reaction, which in turn stimulates the production of suppressor T cells. These suppressor cells non-specifically inhibit the autoimmune reaction against a hair follicle.<sup>[7]</sup>

Immunotherapy has shown promising results in cutaneous viral infections such as recalcitrant and extensive warts and molluscum contagiosum and recurrent herpes simplex infections.<sup>[9-11]</sup> There are reports of resistant cutaneous leishmaniasis showing a good response to immunotherapy administered in combination with traditional treatment.<sup>[12]</sup>

This symposium includes three review articles that give an overview of immunotherapy in dermatology. The first article of the symposium deals with immunotherapy of melanoma and non-melanoma skin cancers.

The second article discusses topical and systemic immune-enhancing agents that are found effective in autoimmune skin diseases with a special focus on vitiligo and alopecia areata. Although not an autoimmune disease in the strict sense, some of the topical immunotherapy agents discussed in the article are found useful in the management of psoriasis as well, and this indication has been mentioned in the review.

The last review describes the role of topical and intralesional immunotherapy in cutaneous infections.

Immunotherapy has been quite rewarding in the management of many malignant conditions including those affecting the skin. Further research is ongoing to ensure better outcomes. The full potential of immunotherapy in combating autoimmune and infectious diseases is yet to be tapped. Coming years may see a greater role for immunotherapy in the management of neoplastic, autoimmune, and infectious conditions.

#### Declaration of patient consent

Not required as there are no patients in this article.

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#### Conflicts of interest

Dr. Betsy Ambooken is on the editorial board of the Journal.

## REFERENCES

1. Ramamurthy D, Nundalall T, Cingo S, Mungra N, Karaan M, Naran K, *et al.* Recent advances in immunotherapies against infectious diseases. *Immunother Adv* 2021;1:1-16.
2. Morales A, Eidinger D, Bruce AW. Intracavitary bacillus Calmette-Guerin in the treatment of superficial bladder tumors. *J Urol* 1976;116:180-3.
3. Naran K, Nundalall T, Chetty S, Barth S. Principles of immunotherapy: Implications for treatment strategies in cancer and infectious diseases. *Front Microbiol* 2018;9:3158.
4. Immunotherapies for autoimmune diseases. *Nat Biomed Eng* 2019;3:247.
5. Ascierto PA, Schadendorf D. Immunotherapy in non-melanoma skin cancer: Updates and new perspectives. *Drugs Context* 2019;8:212583.
6. Kuryk L, Bertinato L, Staniszewska M, Pancer K, Wiczorek M, Salmaso S, *et al.* From conventional therapies to immunotherapy: Melanoma treatment in review. *Cancers (Basel)* 2020;12:3057.
7. Singh G, Lavanya M. Topical immunotherapy in alopecia areata. *Int J Trichol* 2010;2:36-9.
8. Aghaei S, Ardekani GS. Topical immunotherapy with diphenylcyclopropanone in vitiligo: A preliminary experience. *Indian J Dermatol Venereol Leprol* 2008;74:628-31.
9. Thappa DM, Chiramel MJ. Evolving role of immunotherapy in the treatment of refractory warts. *Indian Dermatol Online J* 2016;7:364-70.
10. Al-Mutairi N, Al-Doukhi A, Al-Farag S, Al-Haddad A. Comparative study on the efficacy, safety, and acceptability of imiquimod 5% cream versus cryotherapy for molluscum contagiosum in children. *Pediatr Dermatol* 2010;27:388-94.
11. Lynn AS, Honari G, Guan L, Zhao L, Palli MA, Horn TD, *et al.* A phase 2, multi-center, placebo-controlled study of single dose squaric acid dibutyl ester (SADBE) to reduce frequency of outbreaks in subjects with recurrent herpes labialis. *J Am Acad Dermatol* 2020;83:1807-9.
12. Azim M, Khan SA, Ullah S, Ullah S, Anjum SI. Therapeutic advances in the topical treatment of cutaneous leishmaniasis: A review. *PLoS Negl Trop Dis* 2021;15:e0009099.

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