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Paediatric Vitiligo: A Review

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Review Article

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ABSTRACT

The pediatric vitiligo differs from the adults by showing an increasedincidence in females, segmental vitiligo being more common and fewer frequent connections with other systemic autoimmune and endocrine disorders. The child year's vitiligo is often associated with marked psychological and long lasting impact onthe self-esteem of the damaged children and their parents; hence a satisfactory treatment is very essential. Treatment of vitiligo is definitely a tough challenge for the dermatologists' more so in the background of childhood vitiligo. Although multiple therapeutic modalities are available in the therapeutic armamentarium, not all can be used in children. This kind of brief report updates regarding various therapies available in the treatment of the child years vitiligo.

INTRODUCTION

Vitiligo [1], a dermatological [2] anomaly that affects around 0.1-5% of the peadiatrics in the world and it can be caused to almost anyone. In most of the cases i.e., in 90% of the vitiligo cases observed till date, the condition shows up at the early teen ages-20's. It is very rare that it can be occurred after twenties. Chances of occurrence of vitiligo after 20 years is one in a thousand. Vitiligos **(Figure 1)** are the auto immune diseases caused for unknown reasons. Firstly it appears as a milk white patch and then spreads all the way in radius within 5-5 years. This disease, just like some auto immune diseases [3] is caused when the natural immune system [4] of the body attacks and destroys the colouring cells that is Melanin cells [5] of the body in certain regions, mostly face, hands, fingers and neck areas. Childhood vitiligo is mostly seen in female children than in male children [6].

At present, numbers of immunotherapy having various mechanisms for cancer patients are beneath clinical trials.

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History of Vitiligo

- For many centuries, people with vitiligo [7] were not allowed to get jobs and were kept away from getting married and were uninvited to marriages because their old ancient and religious beliefs
- Vitiligo is also one of the oldest known diseases to mankind [8]. It was referred to as 'Kilas' in rigvedas, which means Deer like skin.
- In The Bible, Book of Leviticus, Chapter 13 it was described as Lepors and then again misinterpreted.
- In Ramayana asa Sweta kustas

Symptoms

- Discoloration of skin [9,10].
- Premature Hair on scalp [whitening or greying], eyelashes, eyebrows and beard usually by the age of 35
- But in children the area where the beard grows becomes white i.e., on the skin
- Colour loss of tissues of the line inside the nose and mouth and their mucous membranes
- Armpits, Genitals, Rectum and Navels show discoloured patches

Causes

The cause is not known. Vitiligo **(Figure 1a and 1b)** might be an immune system illness [11-13]. These maladies happen when your invulnerable framework erroneously assaults some a player in your own body. In vitiligo, the safe framework may annihilate the melanocytes in the skin. It is additionally conceivable that one or more qualities may make a man more inclined to get the turmoil.

A few analysts imagine that the melanocytes annihilate themselves. Others surmise that a solitary occasion, for example, sunburn or enthusiastic misery can bring about vitiligo [14]. In any case, these occasions have not been demonstrated to bring about vitiligo [15].

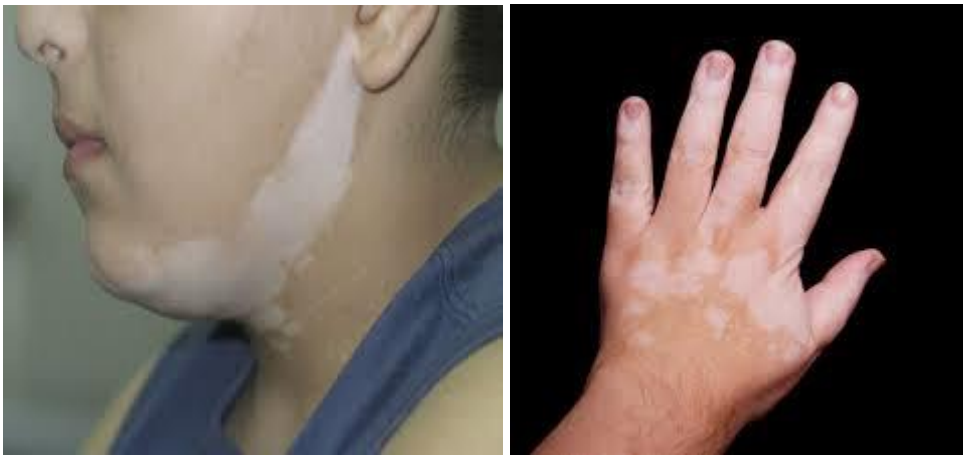

Figure 1a and 1b: Children's affected with Vitiligo.

Treatment

In general, there is no particular and a perfect treatment to this, but with the help of the following the patients are being treated to an extent but not completely cured.

Treatments include

- Corticosteroids, these have shown much effect in treating the localised vitiligos where it has affected only a certain part of the body. High, low and mid potent corticosteroids are mostly used to treat localised vitilogos [16]. Calcipotriol a synthetic form of vit D3 has showed its potency in treating 50-60% of child vitiligo. Treatments apart, long term usage of this potent drug in children can cause PAX syndrome, Cushing's syndrome, Tachyphylaxis and Glucoma [17].
- Systemic treatment, it includes repigmentation of the depigmented skin. Mostly the oral corticosteroids are used in this type of treatments.
- Phototherapy, it's one of the treatment methods by which more complicated vitilogos are being treated now days. This involves exposure of the depigmented skin to UV radiation which is of the following types, narrow-band UVB, combined UVA plus UVB, and Ultraviolet (UV) A plus psoralen (PUVA). This type has got some limitations because children are prone to fear, the life expectancies and long-term toxicities [18].
- Surgical Modalities, not often used and are only to be used when no other treatment is working. These are neither recommended for very young age vitiligo patients nor to very young age stable lesions. Because these may be stable but they eventually grow with the skin [19,20]. There are various methods where the melanocytes are replenished. Minipunch grafts, SBEG, cultured epidermal suspension are the common ones used [21].
- Cosmetic camouflage, affected areas are concealed here using different methods. This is just an add-on treatment for the previous methods. As we have already discussed the vitiligo cannot be cured completely at the fullest of its nature [22]. It has to covered with some chemical cosmetic camoflauges.
- Physical support [23], usually kids who suffer with vitiligo undergo depression, low self-esteem and inferiority complexes. They have to be given physical and mental support. Proper counselling must be given.
- Depigmentation, this is done by Monobenzyl ether of hydroquinone.

Risk Factors

The Risk Factors are those factors that induce the probabilities of vitiligo [24-26]. In normal words, these could be the external or internal hazards or substances that trigger the immune system to destroy the pigmenting cells that is the melanocytic cells in the body [27,28]. These could be anything we come in contact with in our day to day life. The main risk factors include:

Family History: Family history plays a major roll in the occurrence of vitiligo [29] to an individual. One can inherit this disease only when someone in the family is likely to have it already. Even somewhere in the family tree.

Stress: Stress potential, is one of the other main important factor that triggers the vitiligo [30].

Exposure: Excess exposure to sunlight, UV radiation and some chemicals may also cause depigmentation or decolouration of melanocytes [31-35].

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Types of vitiligo

Vitiligo is classified tnto two different types based in the nature and the area of occurrence [41-45].

1. Segmental Vitiligo
2. Non-Segmental Vitiligo

Segmental vilitigo: Segmental vilitigo [46,47] is mostly caused in the early ages i.e., childhood of the person and stops before maturity/puberty of the person. It mostly affects a single part and usually stops and doesn't spread after it stops. It occurs on one side of the body mostly face, one leg or one hand etc.,

Non- Segmental Vilitigo: Unlike segmental vitiligo [47,48], non-segmental vitiligo is independent of period, location and age. It can be caused anytime and anywhere. Anywhere on the body and its two snidely spread and no one knows when it will spread up to.

Prevention

There is nothing like particular prevention to this disease it can be caused almost through anything and out of anywhere and anytime. But, out of known facts about vitligo [49] one must avoid stress, over exposure to sunlight, UV radiation and radioactive chemicals and must have proper sleep [50-55].

Complications

Complications and problems faced by the paediatrics that suffer vitiligo in their day to day life;

- ✓ Lack of confidence
- ✓ Inferiority complex
- ✓ Poor social activities
- ✓ Highly prone to sun burn and skin cancer

CONCLUSION

We have many techniques to treat vitiligo and many alternatives for each technique. Yet, everything is far away from satisfactory. Complete treatment is not found yet. And the worst part is 15%-30% of the patients don't respond to any type of treatment at all.

People must be made aware of this disease so that the sufferers are not treated badly or ill-treated.

REFERENCES

1. Kandil E. Treatment of vitiligo with 0-1 per cent betamethasone 17-valerate in isopropyl alcohol-a double-blind trial. Br J Dermatol. 1974;91:457–460.
2. Lepe V, et al. A double-blind randomized trial of 0.1% tacrolimus vs 0.05% clobetasol for the treatment of childhood vitiligo. Arch Dermatol. 2003;139:581–585.
3. Singh M, et al. Interleukin 1-α: A Modulator of Melanocyte Homeostasis in Vitiligo. Biochem Anal Biochem. 2016;5:273.
4. Ryan TJ. Community Dermatology: A branch of Dermatology Embracing all Skin Carers in The Restoration of Skin Function. Health Care Current Reviews. 2015;3:147.
5. Alnoshan AA, et al. Effect of Narrowband Ultraviolet B Therapy on Serum Vitamin D in Saudi Patients with Vitiligo. J Pharmacovigilance. 2016;4:198.
6. Lotti T, et al. New Winning Strategies for Vitiligo: The Low Dose Cytokines Therapy Approach. Pigmentary Disorders. 2015;2:229.
7. Lesley M, et al. Vitiligo: A comprehensive overview. Journal of the American Academy of Dermatology. 2011;65:493-514.
8. Cunha PR and Kroumpouzos G. Melasma and Vitiligo: Novel and Experimental Therapies. J Clin Exp Dermatol Res. 2016;7:e106.
9. Sugiura K and Sugiura M. Prevention and Treatment of Skin Injury and Trauma in Triathlon Competition Day. J Sports Med Doping Stud. 2015;6:170.
10. Guan LJ and Zhang JA. IL-21/IL-21R in Autoimmune Diseases. J Clin Cell Immunol. 2016;7:412.
11. Zou L, et al. The Research Progress of Long Noncoding RNAs in Autoimmune Diseases. J Neurol Neurophysiol. 2016;7:359.
12. Guo B. IL-10 Modulates Th17 Pathogenicity during Autoimmune Diseases. J Clin Cell Immunol. 2016;7:400.
13. Westerhof Wet, al. Left-right comparison study of the combination of fluticasone propionate and UV-A vs. either fluticasone propionate or UV-A alone for the long-term treatment of vitiligo. Arch Dermatol. 1999;135:1061–1066.
14. Yanqiang W, et al. Neuromyelitis Optica Spectrum Disorders with Autoimmune Diseases. J Mult Scler (Foster City). 2016;3:167.
15. Allen HB, et al. Autoimmune Diseases of the Innate and Adaptive Immune System including Atopic Dermatitis, Psoriasis, Chronic Arthritis, Lyme Disease, and Alzheimer's Disease. Immunochem Immunopathol. 2015;1:112.
16. Loh SH, et al. Systemic Clearance of Radiation-Induced Apoptotic Cells by SIGN-R1 and Complement Factors and their Involvement in Autoimmune Diseases. J Mol Biomark Diagn. 2015; 6:256.
17. Aagha AE, et al. Clinical Presentations of Vitamin D Deficiency in Children at King Abdul-Aziz University Hospital, Jeddah, Saudi Arabia: A Cross-Sectional Survey. Gen Med (Los Angeles). 2016; 4:251.
18. Cunha PR, and Kroumpouzos G. Melasma and Vitiligo: Novel and Experimental Therapies. J Clin Exp Dermatol Res. 2016;7:e106.
19. Mohammad T, et al. Improvement of Vitiligo after Concurrent Treatment of Hypothyroidism: A Case Report. Pigmentary Disorders. 2015;2:220.

20. Gupta A, et al. Comparative Evaluation of Two Different Novel Formulations of Quercetin Against Non Melanoma Skin Cancer in Human Subjects. J Clin Exp Dermatol Res. 2016;7:346.
21. Guan LJ and Zhang JA. IL-21/IL-21R in Autoimmune Diseases. J Clin Cell Immunol. 2016;7:412.
22. Holland KM et al. Francisella tularensis - Immune Cell Activator, Suppressor, or Stealthy Evader: 1 The Evolving View from the Petri Dish. J Bioterror Biodef 2016;7:144.
23. Adebolu TT and OB Olorunfemi. Effects of Fermented Cheese Whey on the Cells of the Immune System of Apparently Healthy Albino Rats. J Immuno Biol. 2016;1:109.
24. Berezin AE. Impaired Immune Phenotype of Endothelial Cell-derived Micro Particles: The Missing Link between Diabetes-related States and Risk of Cardiovascular Complications. J Data Mining Genomics & Proteomics. 2016;7:195.
25. Fourie PR. Immune Modulation in Children. A South African Perspective. J Clin Cell Immunol. 2016;7:414.
26. Alper S. Vitiligo- Pigmentary Disorders. 2015;2:e105.
27. Yan Valle. Vitiligo: Challenges and Opportunities for Social Entrepreneurs and Communities. Pigmentary Disorders. 2014;1:e104.
28. Freites-Martinez A, et al. Halo Medium-Sized Congenital Melanocytic Nevi and Vitiligo Progression in Three Children. Pigmentary Disorders. 2014;1:149.
29. Badri AM, et al. An immunohistological study of cutaneous lymphocytes in vitiligo. J Pathol. 1993;170:149-155.
30. Bleehen SS. The treatment of vitiligo with topical corticosteroids. Light and electronmicroscopic studies. Br J Dermatol. 1976;94:43-50.
31. Ding X, et al. The Epidemiology and Treatment of Vitiligo: A Chinese Perspective. Pigmentary Disorders 2014;1:148.
32. Hann SK, et al. The change of melanocyte cytotoxicity after systemic steroid treatment in vitiligo patients. J Dermatol Sci. 1993;6:201–205.
33. Le Pillouer Prost A. Treatment of Vitiligo with an Ablative Fractional CO2 Laser Followed by Sun Exposure: A Case Report. Pigmentary Disorders. 2014;1:147.
34. D'Erme AM, et al. Laser Therapy for Vitiligo. Pigmentary Disorders. 2014;1:144.
35. Chandler DJ et al. The Psychosocial Complications of Vitiligo. Pigmentary Disorders. 2014;1:130.
36. Maduewesi OC. Embracing the Skin we are in, Getting Comfortable in our Skin. Pigmentary Disorders. 2014;1:129.
37. Silverberg NB, et al, Tacrolimus ointment promotes repigmentation of vitiligo in children: a review of 57 cases. J Am Acad Dermatol. 2004;51:760-766.
38. Younes AKH, et al. Lack of Association between Catalase Gene Polymorphism and Susceptibility to Vitiligo in an Egyptian Population. Pigmentary Disorders. 2014,3:124.
39. Mansuri MS, et al. Could ER Stress Be A Major Link Between Oxidative Stress And Autoimmunity In Vitiligo?. Pigmentary Disorders. 2014;1:123.
40. Awad SS. Behavior of Hair Follicles in Vitiligo: Clinical Presentation and Discussion. Pigmentary Disorders. 2014;1:120.
41. Benzekri L and Gauthier Y. New Insights in Mixed Vitiligo: Initial Non Segmental Vitiligo can precede the Onset of Segmental Vitiligo (Cases Report and Review of Theories). Pigmentary Disorders. 2014;1:114.

42. Chiriac A et al. New Onset of Psoriasis within Plaques of Vitiligo Treated with Narrow Band UVB-Case Report. Pigmentary Disorders. 2014;1:110.
43. Patrick A and Riley. The Haptogenic Pathogenesis of Vitiligo and the Source of the Pattern of Depigmentation. Pigmentary Disorders. 2014;1:109.
44. Hann SK, et al. Treatment of vitiligo with oral 5-methoxypsoralen. J Dermatol. 1991;18:324-329.
45. Thakur A, et al. Phototherapy as a Treatment for Uremic Pruritus - A Review. Gen Med (Los Angel). 2015;3: 202.
46. Mateeva V and Kadurina M. Clinical, Histological and Immunohistochemical Changes in Hypopigmented Mycosis Fungoides in Response to Narrow-Band UVB Phototherapy. Pigmentary Disorders. 2015;2:167.
47. Douris PC, et al. Phototherapy and Grip Muscle Performance. J Nov Physiother 2012;2:115.
48. Majid I. Targeted NBUVB Phototherapy in Childhood Vitiligo: A Study in 35 Children. Pigmentary Disorders. 2014;1:101.
49. Majid I. Vitiligo Management: An Update. Vitiligo Management: An Update. 2010;3:a332.
50. Owen N, et al. Epigenetics, autoimmunity and hematologic malignancies: A comprehensive review. Journal of Autoimmunity. 2012;39:451-465.
51. Naoki O, et al. Piebaldism. Journal of Dermatology. 2013;40:330-335.
52. Parveen J, et al. Association of FOXP3 (rs3761548) promoter polymorphism with nondermatomal vitiligo: A study from India. Journal of the American Academy of Dermatology. 2013.
53. Hani Al-Shobaili A, and Zafar R. Oxidized tyrosinase: A possible antigenic stimulus for non-segmental vitiligo autoantibodies. Journal of Dermatological Science. 2015.
54. Doaa Salah Hegab and Mohamed Attia Saad Attia. Decreased Circulating T Regulatory Cells in Egyptian Patients with Nonsegmental Vitiligo: Correlation with Disease Activity. Dermatology Research and Practice.. 2015;2015:1–7.
55. Ana Cláudia Guimarães A, et al. Immunological Parameters Associated With Vitiligo Treatments: A Literature Review Based on Clinical Studies. Autoimmune Diseases. 2015;2015:1-5.