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study of classifications of vitiligo and suitable treatment methods adopted for it

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Abstract:
Vitiligo is commonly found skin disorder in which white patches are seen on the skin. These patches affect the cosmetic beauty as well as it causes psychological stress to the patient suffering from it. The social stigma is also remarkable in case of female patients. The vitiligo is classified in various types by Global Issues Consensus Conference. The phototherapy is main subject of interest for the treatment of vitiligo but some other treatment methods are also found to be effective for a particular type of vitiligo. We have studied these classifications and various treatment modalities adopted for the treatment. The skin type and its interaction with light as well as other pharmacological treatment are discussed here.

Key words: Vitiligo, melanocyte, corticosteroid, pimecrolimus

Introduction:

The vitiligo can be classified as Non-segmental vitiligo (NSV): a group that comprises acrofacial, mucosal, generalized or common, universal, and mixed forms besides rare forms. Acrofacial can affect, face, head, hands and feet, and preferably involve the perioral region and the extremities of digits. Mucosal affects the oral and genital mucosae. Furthermore, areas of mucosa may also be affected in patients with acrofacial, common, or universal forms; when it involves only one mucosal site it is classified as indeterminate. Generalized or common Macules / patches are often symmetrical; it can affect any part of the tegument, mainly hands, fingers, face and trauma-exposed areas.Common Vitiligo. Bilateral and often symmetrical lesions characterize common vitiligo. Universal is the form that affects the largest extent of tegument (80-90% of body surface), and it is the most common form in adulthood. The generalized or common form usually precedes it. Mixed type is the concomitant involvement of segmental and non-segmental vitiligo. Most often, the segmental form precedes NSV. Segmental Vitiligo can affect one, two or multiple segments. The unisegmental form is the most common one and consists of one or more white macules on one side of the body, usually respecting the body midline, and there is also involvement of body hair (leukotrichia) besides rapid onset of the condition. Less commonly, it can affect two or more segments and even have bilateral segmental distribution, starting simultaneously or not.[30]

Method:

The Vitiligo treatment is to control the damage to melanocytes and stimulate their migration from surrounding skin and reservoirs. Treatment may be divided into pharmacological, surgical and physical, which can sometimes be combined. Pharmacological Treatment is of two types Topical and Systemic. Physical Treatment and Surgical Treatment are also in practice. Pharmacological Treatment includes Topical corticosteroid therapy. It is considered a first-line treatment of vitiligo, since it is low-cost and easy to apply.[1] It is limited by the risk of local adverse effects, such as atrophy, striae and telangiectasias and also systemic side effects. Thus, the use of high-potency topical corticosteroids is more suitable to treat small affected areas, being more effective on the face, elbows and knees, although some authors prefer to use low power corticoids on the face and flexural areas.[2] A meta-analysis demonstrated that class 3 topic corticosteroids had higher efficacy in the treatment of localized vitiligo, compared to class 4 and intra lesion corticoids, also showing higher incidence of atrophy in class 4 drugs.[3] Although studies recommend the use of high power topical corticosteroids in localized vitiligo, its use should be limited to 2-4 months periods, as low power corticosteroids or the use of other immunomodulators should be considered in order to decrease the risk of adverse events. If no clinical response is seen with topical corticosteroids in 3 to 4 months, their application should be suspended.[4] Subsequently, tacrolimus and pimecrolimus, other calcineurin inhibitors, demonstrated good absorption when used topically.[5] Corticosteroids inhibit collagen synthesis, leading to an increased risk of skin atrophy, especially during prolonged use. An advantage of calcineurin inhibitors is that neocollagenesis does not depend from calcineurin; hence there is no risk of atrophy.[5] In an open-label, noncomparative study, 42

patients were treated with 0.1% tacrolimus, twice a day for 6 months, with 76.09% achieving some degree of repigmentation. Children showed higher response rates than adults and the clinical forms with best response were vulgar and focal.[6]The association of a topical immunosuppressive drug with a physical treatment was investigated in a comparative, randomized, single-blinded study that showed better therapeutic response in groups treated by excimer laser (308nm) associated with 1% topical pimecrolimus when compared to LASER used alone.[9] Calcineurin inhibitors have demonstrated efficacy similar to topical corticosteroids, without the risk of cutaneous atrophy in the long-term use.[8] In a case study 75% repigmentation rate was observed in patients that were resistant to previous treatments such as tacrolimus and topic corticosteroids.[10,11] The use of vitamin D analogues has been associated with narrow-band UVB and Excimer LASER.[2]

A non-comparative study with 81 vitiligo patients treated with prednisolone 0.3 mg/kg/day for 2 months, progressively reduced until the fifth month, demonstrated control of disease progression and repigmentation in 87.7% and 74.1% of cases respectively.[12] Twenty-nine patients with vitiligo received 2 weekly pulses of 10mg dexamethasone on 2 consecutive days, for a maximum of 24 weeks, and whilst 88% achieve progression control, 72.4% of patients presented no repigmentation.[14] These studies support the need for further evidence on this form of treatment. Ultraviolet (UV) radiation, both in UVA and UVB spectrum, has been used in the treatment of vitiligo. Its effect is not yet fully understood. It can induce immunosuppression by inhibiting melanocyte destruction or stimulating the increase in their numbers and migratory capacity.[15]

An effective and safe therapeutic modality, treatment with narrowband UVB (311nm) is considered a first-line option for vitiligo. It dispenses the combined use of an oral psoralen, thus freeing patients of ocular and gastrointestinal adverse events related to this drug. In 1997 a pioneer comparative study, comparing topical PUVA and NBUVB, reported 46% repigmentation rates in the PUVA group and 67% in the NBUVB group. The author emphasized the lower cumulative dose in the group undergoing NBUVB and the lower incidence of adverse events.[16]

A double-blind randomized study showed 64% of patients with more than 50% repigmentation in the group submitted to NBUVB, compared to 36% in the group treated with systemic PUVA, evidencing the superiority of NBUVB.[17] In a preliminary result, 4 cases of vitiligo treated with NBUVB combined with melanotrophic hormone synthetic analog afamelanotide obtained diffuse and fast repigmentation, although more studies are needed.[18]

Photo-chemotherapy is a therapeutic method that consists in the use of a drug that enhances the effects of light. Psoralens are the most commonly used drugs in the treatment of vitiligo, in the forms 8methoxypsoralen, 5-methoxypsoralen or trimethylpsoralen which may be used in their oral and topical presentations.[2] The better results achieved with NBUVB as well as its greater safety profile when compared to UVA phototherapy, are causing the latter to be less used.[15,19] The combination of monochromatic excimer light with xenon chloride gas emits light with a wavelength of 308nm. There are two forms of producing this light; the excimer LASER that produces a coherent and monochromatic light and the excimer lamp that produces a non-directional and non-coherent light of 308nm. These treatment forms differ from NBUVB in their mode of application, as they may be applied in a more localized fashion in the lesions. Two comparative studies in patients with symmetrically distributed vitiligo lesions, compared the response between parasagittal planes treated by excimer laser and NBUVB, showing quicker response and larger area of repigmentation in the excimer group.[20,21] Studies comparing excimer laser versus lamps found no difference in response rates, although lamps are more time consuming to deliver the required dose, and this period can be quite long in patients with disseminated lesions.[22-24]

Surgical melanocyte transplantation is an important therapeutic option available for patients with stable disease who failed to respond to classical therapies.[25] It is indicated even for traditionally refractory areas such as distal extremities, elbows, knees, nipples, eyelids and lips.[26] Furthermore, the appropriate choice of patients, with the exclusion of those presenting Koebner phenomenon and active disease is essential to prevent achromic lesions in the donor areas and achieve better results in the receiving areas.[27] A mini grafting test can be performed

previously if there are doubts concerning the stability of the disease.[28] Punch Grafting (PG) is the easiest and lowest cost technique, although it is generally limited to treating small areas.[29] The recipient area is prepared by performing multiple punches of equal size or 0.25 to 0.5 mm smaller than those extracted from the donor area.[26] Larger grafts often produce a cosmetically undesirable effect, known as cobblestoning (cobblestone appearance). This side effect usually resolves spontaneously or with treatments like electrofulguration.[30] Punch grafting is able to produce excellent repigmentation and good cosmetic results. In a prospective study with a large number of patients, 74.55% of those undergoing PG achieved 90-100% repigmentation. Evidences also suggest that the association of PG with phototherapy (narrowband UVB) and topical corticosteroids may enhance therapeutic results for this technique.

Conclusion:

From various case studies and treatment methods developed in past few years it is clear that the vitiligo treatment is mainly meant for repigmentation of white patches by different ways. To overcome the disease by controlling melanocyte destruction and reinitiating the melanocyte activity is prime focus. In coming years more suitable method can be expected to come.

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