Introduction

Vitiligo is an acquired chronic pigmentation disorder characterized by depigmented patches of the skin usually symmetrically distributed and usually increase in size with time ***(Taieb and Picardo, 2007)***.

These depigmented macules were first described more than 3.000 years ago in pre-Hindu Vedic and ancient Egyptian text ***(Millington and Levell, 2007).*** It is the most common disorder of pigmentation, its worldwide prevalence is estimated to range between 0.5% to 4% in various populations ***(Alkhateeb et al., 2003).***

The disease shows no racial, or socioeconomic predilection. However, given the contrast between the depigmented areas and healthy skin, the disease is most disfiguring in darker racial groups ***(Ongenae et al., 2006).***

The destruction of melanocytes (MCs) is the cause of depigmented maculae that clinically represent the disease vitiligo. Although the pathogensis of vitiligo is complex and not fully understood, various theories have been proposed such as the genetic factors, autoimmunity, neurological factors, toxic metabolites, biochemical hypotheses, lack of melanocyte growth factors and melanocytorrhagy hypothesis which is based on an in vivo observation of melanocyte detachment from the basal layer, followed by transepidermal migration, which in turn trigger melanocyte death ***(Njoo and Westerhof, 2001; Gauthier et al., 2003; Ongenae et al., 2003).***

The psychological aspect of vitiligo patients is influenced and exacerbated by societal perception of skin disfigurement and irregularities in skin color. Patients with vitiligo experience low self-esteem, job discrimination, depression, and embarrassment in social and sexual relationships ***(Silva, 2004).***

Vitiligo had been a difficult disease to treat. With the absence of a standardized scoring system for vitiligo, a meta-analysis to assess different treatment options is difficult. Previously, the conventional therapeutic

options have included administration of oral or topical psoralen with exposure to ultra violet A (UVA) radiation therapy, topical steroids, and depigmentation therapies. But, none of these treatment options has been ideal ***(Grimes, 2005).***

During the past 10 years, there have been several new advances in the treatment of vitiligo. These new treatment options include narrowband ultra violet B (NB-UVB) radiation therapy, targeted light therapy, topical calcineurin inhibitors such as tacrolimus and pimecrolimus, dermabrasion, 5-fluorouracil, phenylalanine, depigmentation and surgical therapies ***(Forschner et al., 2007).***

In photochemotherapy, photosensitizers used either to increase the sensitivity of the skin in case of psoralen, or to increase the sensitivity of MCs as khellin does ***(Volkavo et al., 2004).***

Phototherapy, in the form of NB-UVB (311 nm-313nm) or broad band ultraviolet B (BB-UVB) (290nm-320nm), and by the comparison between the efficacy of NB-UVB radiation therapy with psoralen photochemotherapy and its lack of the systemic adverse effects, NB-UVB has emerged as the initial treatment of choice for patients with moderate to severe disease ***(Parsad et al., 2006; Yones et al., 2007).***

The 308 nm excimer laser has been shown to be effective and has high tolerance in the treatment of localized vitiligo ***(Spencer et al., 2002)***.

Vitamin D3 analogues inhibits T-cell activation, stimulates growth and differentiation of keratinocytes (KCs) and MCs, induces melanogenesis by reducing the disturbed calcium influx into MCs, and restores calcium homeostasis ***(Lebwohl et al., 2003).***

Topical corticosteroids have been widely used for the treatment of vitiligo, but its use is impractical in generalized vitiligo because of associated adverse effects ***(Kane et al., 1993)***. While systemic steroid may arrest the progression of vitiligo and lead to repigmentation by immunosuppression ***(Pasricha and Khaitan, 2000).***

Topical calcineurin inhibitors recently introduced for the treatmentof vitiligo. They offer the advantage of prolonged treatment without the

adverse effects seen in the long-term use of corticosteroids, tacrolimus is preferred by several doctors specially in young children and in the areas of eye lids, body folds and genitalia ***(Tanghetti, 2003).*** Also, pimecrolimus cream 1% is effective and safe in the treatment of vitiliginous lesions in the head and neck region ***(Boone et al., 2007).***

In comparison of non-surgical therapies, a meta-analysis of the literature among patient series studies on generalized vitiligo, the highest mean success rates were achieved with NB-UVB ***(Falabella, 2005)*** .

Patients with stable vitiligo, who are refractory to medical therapy are the best candidates for surgical treatment ***(Gupta and Kumar, 2003)***. The different modalities of surgical techniques include tattooing, suction blister epidermal graft, , epidermal culture grafting, melanocyte culture grafting, non cultured melanocytes suspension, autologous noncultred epidermal suspension cell transplantation, or miniature punch grafting split thickness skin graft ***(Van Geel et al., 2006)***. Transplantation procedures are contraindicated for patients with a history of hypertrophic scars or keloids ***(Van Geel et al., 2006; Mahmoud et al., 2008).***

After many years of research, the challenge of generating level-1a evidence studies for the treatment of vitiligo still exists, due to the lack of a standardized scaling systems ***(Taieb and Piardo, 2007).*** The recent modalities and combination therapies have been studied to provide us with more treatment options and give patients hope for this psychologically disturbing condition. This review will evaluate the therapeutic options based on the strength of evidence.