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## DISORDER OF SKIN PIGMENTATION IN THE BODY

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### ABSTRACT

*This review article provides a comprehensive overview of vitiligo, covering its potential causes, types, diagnostic methods, treatment options, and psychological and social impacts. The etiology of vitiligo is multifactorial, involving genetic predisposition, autoimmune mechanisms, environmental triggers, and possibly neurogenic factors. Vitiligo can be categorized into different types, including non-segmental vitiligo (NSV), segmental vitiligo (SV), universal vitiligo, and focal vitiligo, each with distinct characteristics and patterns of depigmentation.*

**Key words:** vitiligo, pigmentation, autoimmune, melanin, segmental, skin biopsy, depigmentation.

### АННОТАЦИЯ

*Витилиго - это хроническое кожное заболевание, характеризующееся потерей пигментации, что приводит к образованию белых пятен на коже. В данной обзорной статье предоставлено всестороннее описание витилиго, включая его потенциальные причины, типы, методы диагностики, варианты лечения, а также психологические и социальные последствия. Этиология витилиго многофакторна и включает в себя генетическую предрасположенность, аутоиммунные механизмы, воздействие окружающей среды, а также, возможно, нейрогенные факторы. Витилиго может быть классифицировано на различные типы, включая несегментарное витилиго (НСВ), сегментарное витилиго (СВ), универсальное витилиго и фокальное витилиго, каждое из которых имеет свои характеристики и особенности депигментации.*

## Introduction

Vitiligo is a chronic skin condition that results in the loss of pigmentation, leading to the appearance of white patches on various parts of the body. Affecting approximately 1% of the global population, vitiligo can occur in individuals of all ages, genders, and ethnicities. Despite its prevalence, the exact causes of vitiligo remain unclear, and the condition poses significant diagnostic and therapeutic challenges. This article provides an overview of vitiligo, exploring its potential causes, types, diagnostic methods, treatment options, and its psychological and social impact.

## Causes of Vitiligo

1. **Genetic Factors** Vitiligo often has a hereditary component, with multiple genes implicated in its development. These genes are usually involved in immune system regulation and melanin production. A family history of vitiligo or other autoimmune diseases increases the risk of developing the condition.

2. **Autoimmune Response** The leading theory is that vitiligo is an autoimmune disorder where the immune system mistakenly attacks and destroys melanocytes, the cells responsible for producing melanin. This hypothesis is supported by the presence of autoantibodies and the association of vitiligo with other autoimmune conditions, such as thyroid disease and alopecia areata.

3. **Environmental Triggers** Several environmental factors may trigger or exacerbate vitiligo, including exposure to certain chemicals, severe sunburn, skin trauma (Koebner phenomenon), and oxidative stress. These factors can damage melanocytes or alter immune responses, contributing to the development of vitiligo.

4. **Neurogenic Factors** Some researchers propose that neurogenic factors, where nerve endings release substances that are toxic to melanocytes, might play a role in vitiligo, particularly in segmental vitiligo.

## Types of Vitiligo

1. **Non-Segmental Vitiligo (NSV)** The most common form of vitiligo, NSV, typically presents with symmetrical white patches on both sides of the body. Commonly affected areas include the face, neck, hands, and regions around body openings. NSV often progresses slowly over time.

2. **Segmental Vitiligo (SV)** SV is less common and usually appears at a younger age. It affects only one side of the body and progresses rapidly within the first year before stabilizing. SV is thought to have a different pathogenesis, potentially involving the nervous system.

3. **Universal Vitiligo** A rare form where most of the body's skin loses pigment, leading to widespread depigmentation. This form of vitiligo can cover more than 80% of the body.

4. **Focal Vitiligo** Characterized by one or a few white patches in a localized area without a specific pattern, this type does not typically spread.

### **Diagnosis**

1. **Clinical Examination** A dermatologist can often diagnose vitiligo through a clinical examination, observing the distribution and appearance of white patches on the skin. A thorough medical history and family history help support the diagnosis.

2. **Wood's Lamp Examination** A Wood's lamp, which emits ultraviolet light, is used to highlight depigmented areas, making them more visible and helping differentiate vitiligo from other skin conditions.

3. **Skin Biopsy** In uncertain cases, a skin biopsy may be performed to confirm the diagnosis by examining the absence of melanocytes in the affected areas under a microscope.

4. **Blood Tests** Blood tests may be conducted to check for associated autoimmune disorders, such as thyroid disease, diabetes, and pernicious anemia, which are more common in vitiligo patients.

### **Treatment**

#### **1. Topical Treatments**

- **Corticosteroids:** These are often the first line of treatment to reduce inflammation and encourage repigmentation. Prolonged use, however, can cause side effects.

- **Calcineurin Inhibitors:** Tacrolimus and pimecrolimus are alternatives to corticosteroids, especially for sensitive areas like the face and neck, with fewer side effects.

#### **2. Phototherapy**

- **Narrowband UVB (NB-UVB):** This is the most effective phototherapy for vitiligo, involving exposure to specific wavelengths of ultraviolet light to stimulate melanocyte activity.

- **PUVA Therapy:** Combines a drug called psoralen with UVA light exposure. It is less commonly used due to potential side effects and the availability of NB-UVB.

#### **3. Laser Therapy**

- **Excimer Laser:** This laser targets specific areas of depigmentation with high-intensity UVB light, effective for localized vitiligo.

#### **4. Surgical Treatments**

- **Skin Grafting:** Transplanting pigmented skin from one area of the body to depigmented areas. Suitable for stable vitiligo where no new patches have developed recently.

- **Melanocyte Transplantation:** Cultured melanocytes are transplanted into depigmented areas to restore pigmentation.

## 5. Depigmentation Therapy

- For extensive vitiligo, patients may choose to depigment the remaining pigmented skin to achieve a uniform appearance. This process is permanent and involves the use of monobenzone.

### Psychological and Social Impact

Vitiligo can have profound psychological and social effects, leading to issues such as low self-esteem, depression, and social anxiety. The visibility of the condition often results in stigmatization and emotional distress. Support groups, counseling, and cognitive-behavioral therapy can help patients cope with the psychological challenges of vitiligo.

### Conclusion

Vitiligo is a complex condition with significant physical, psychological, and social implications. While there is no cure, various treatments can manage symptoms and improve quality of life. Continued research into the genetic and autoimmune aspects of vitiligo holds promise for more effective treatments and potentially a cure in the future. Early diagnosis and a comprehensive, individualized treatment plan are essential in mitigating the impact of vitiligo and helping patients lead fulfilling lives.

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