

Chapter 11

Skin Diseases

Mechanisms and

Treatments

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ABSTRACT

Skin diseases encompass various conditions that affect the skin, ranging from infections and inflammations to genetic disorders and malignancies. These diseases pose significant health challenges and profoundly impact the quality of life, leading to psychological and social consequences. Understanding the underlying mechanisms of skin diseases is critical for developing effective treatment strategies. In recent years, dietary antioxidants have garnered attention for their potential role in mitigating skin diseases by combating oxidative stress. This chapter aims to delve into the intricate mechanisms of prevalent skin diseases, review the current treatment modalities, and explore the role of dietary antioxidants in promoting skin health. By providing a comprehensive analysis of the existing scientific literature, this chapter offers valuable insights into the pathophysiology of skin diseases and the therapeutic potential of antioxidants.

INTRODUCTION

Skin diseases are a major public health concern globally, with a wide range of conditions affecting millions of people across all age groups. These diseases vary in severity from mild, self-limiting conditions to severe, chronic, and even life-threatening disorders. Common skin diseases such as eczema, psoriasis, acne, and skin cancers are not only prevalent but also significantly impact the quality of life,

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causing both physical discomfort and psychological distress. The management of these conditions presents considerable challenges due to their complex pathophysiology and the often chronic nature of the diseases.

PREVALENCE AND EPIDEMIOLOGY

The global burden of skin diseases is substantial. According to the Global Burden of Disease Study 2017, skin diseases were the fourth leading cause of non-fatal disease burden worldwide, affecting approximately 1.9 billion people globally (Hay et al., 2014). Among these, eczema and psoriasis are particularly common. Eczema, also known as atopic dermatitis, affects around 15-20% of children and 1-3% of adults globally (Nutten, 2015). Psoriasis, a chronic inflammatory skin disease, affects about 2-4% of the global population, with a higher prevalence in high-income countries (Parisi et al., 2013).

Acne vulgaris is another highly prevalent skin condition, particularly among adolescents and young adults. It is estimated that acne affects around 85% of individuals aged 12-24 years, making it one of the most common dermatological conditions (Tan & Bhate, 2015). The prevalence of skin cancer, particularly melanoma and non-melanoma skin cancers, has also been rising. In 2020, approximately 1.2 million new cases of melanoma were reported globally, with higher incidence rates in regions with predominantly fair-skinned populations (Bray et al., 2018).

CLINICAL MANIFESTATIONS AND IMPACT ON QUALITY OF LIFE

The clinical manifestations of skin diseases are diverse, ranging from mild rashes and erythema to severe lesions, ulcers, and malignant growths. Eczema typically presents with itchy, red, and inflamed skin, often leading to scratching that exacerbates the condition (Nutten, 2015). Psoriasis is characterized by thick, red patches of skin covered with silvery scales, commonly occurring on the elbows, knees, scalp, and lower back (Griffiths & Barker, 2007). Acne manifests as comedones, papules, pustules, and, in severe cases, nodules and cysts, primarily affecting the face, chest, and back (Tan & Bhate, 2015).

Skin cancer, particularly melanoma, is associated with pigmented lesions that may change in size, shape, or colour. Non-melanoma skin cancers, such as basal cell carcinoma and squamous cell carcinoma, typically present as persistent sores or growths that may bleed or crust over (Bray et al., 2018). These conditions can lead to significant physical discomfort, including pain, itching, and burning sensations.

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