ROSACEA UPDATE: A REVIEW OF ITS PATHOPHYSIOLOGY, DIAGNOSIS AND TREATMENT OPTIONS

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ABSTRACT

The review article "Update on Rosacea: A Comprehensive Review of its Pathophysiology, Diagnosis, and Treatment Options" explores recent advances in understanding the pathophysiology of rosacea, as well as diagnostic methods and available treatment options. Triggers of rosacea, including inflammation, vascular dysfunction, skin microbiota, and host immune response, are discussed. Different subtypes of rosacea are detailed, and differential diagnostic methods are discussed. Additionally, an overview of available treatment options for rosacea is provided, including topical and systemic therapies, as well as light-based treatments. Overall, the article provides up-to-date information on rosacea and may serve as a useful guide for physicians and patients seeking to better understand this common skin condition.

Keywords *Rosacea, Pathophysiology, Diagnosis, Immune response, cognitive behavioral therapy.*

1. INTRODUCTION

Rosacea is a chronic inflammatory skin condition that affects millions of people worldwide. Despite its prevalence, relatively little is known about the pathogenesis of this disease, and existing treatments often provide only partial relief of symptoms. In recent years, there have been significant advances in understanding the pathophysiology of rosacea, leading to a better understanding of how the disease manifests itself and the identification of potential new treatments. This review aims to summarize the latest advances in our understanding of rosacea, including the triggers for the disease, the different clinical subtypes, diagnostic methods, and available treatment options. Ultimately, this review aims to provide up-to-date information on rosacea and to serve as a useful guide for both clinicians and patients seeking to better understand this common skin condition.

2. METHODOLOGY

An exhaustive literature review methodology has been used in the article, in which the results of numerous studies and reviews published in renowned scientific journals have been analyzed and synthesized. The literature search was carried out in scientific databases such as PubMed and Google Scholar, using relevant search terms for rosacea and its different aspects. Articles published in the last ten years have been reviewed,

giving priority to the most recent and relevant studies. Studies that addressed the pathophysiology, diagnosis, and treatment of rosacea were included, as well as recent reviews and relevant opinion articles. All studies were carefully read and relevant findings and conclusions extracted for inclusion in this article.

3. RESULTS AND DISCUSSION

The American Academy of Dermatology (AAD) defines rosacea as a chronic skin condition that primarily affects the face and is characterized by redness, swelling, and the appearance of small red bumps on the skin.[i]
According to the Spanish Society of Aesthetic Medicine (SEME), rosacea is a chronic inflammatory skin disease that affects adults, predominantly in women, and manifests with episodes of facial redness, inflammation, papules, and pustules. [ii]
La Organización Mundial de la Salud (OMS) define la rosácea como una enfermedad inflamatoria crónica de la piel que afecta a la cara y se caracteriza por enrojecimiento, aparición de pápulas y pústulas, y dilatación de los vasos sanguíneos superficiales.[iii]

3.1. PATHOPHYSIOLOGY

It is a complex subject and is not yet fully understood. However, several theories have been proposed to explain the different clinical manifestations of the disease.

One theory proposes that rosacea is the result of an abnormal inflammatory response to triggers such as sun exposure, emotional stress, alcohol consumption, and spicy foods, among others. These factors are believed to activate immune system cells and blood vessels in the skin, leading to chronic inflammation and tissue damage.. [iv]

Another theory suggests that rosacea is the result of a dysfunction of the skin barrier and of the skin microbiota. Rosacea patients have been shown to have a higher proportion of pathogenic bacteria and a lower diversity of beneficial bacteria on their skin compared to healthy people. This could lead to an abnormal inflammatory response and activation of the immune system.

These theories are not exclusive and it is possible that rosacea is the result of a combination of genetic, environmental and immunological factors.
It is important to note that, as mentioned above, the pathophysiology of rosacea is still under investigation and new theories may emerge as more is learned.

3.2 . CLINICAL MANIFESTATIONS

It is located on the face, back and wings of the nose, nasolabial folds, cheeks, malar regions, middle part of the forehead and, less frequently, on the chin, around the mouth or on the neck. Extrafacial locations are rare; they always accompany lesions on the face, and are seen in the sternal region, the scalp, and even the abdomen.

It is characterized by facial erythema: redness of the skin of the cheeks, nose, forehead and/or chin, telangiectasias: dilation of the superficial blood vessels of the skin, which appear as small red veins, papules and pustules: inflammatory lesions similar to acne that are located mainly in the areas affected by erythema, dry and itchy eyes: sensation of dryness and itching in the eyes, and, in some cases, sensation of a foreign body and/or ocular redness.

The evolution is chronic, with exacerbations caused by the application of cosmetics, exposure to sunlight or heat, or consumption of alcoholic beverages. Sometimes remissions occur or it can remain stationary without going through all the clinical forms.

3.3. DIAGNOSIS

It is based on the presence of one or more of the following clinical signs [v]
It is based on the presence of one or more of the following clinical signs:

• Persistent redness in the central area of the face.
• Telangiectasias: dilated and visible blood vessels in the skin.
• Papules and pustules: inflammatory lesions that appear in the central area of the face.
• Rhinophyma: thickening of the skin of the nose.
• Ocular: ocular involvement, such as dry eye or blepharitis.
The changes are nonspecific: in the epidermis, hyperkeratosis, parakeratosis, or atrophy; in the dermis, edema, intense vasodilatation with perivascular infiltrates of lymphocytes and histiocytes, or formation of tuberculoid granulomas, and presence of solar elastosis. The connective tissue appears fragmented and disorganized. In chronic cases there is fibrosis and glandular hyperplasia.

3.4. TREATMENT

This study emphasizes the importance of an individualized approach in the treatment of rosacea, taking into account the severity of the symptoms and the presence of comorbidities. Different therapeutic options are mentioned, including topical (metronidazole, ivermectin), systemic (tetracyclines, isotretinoin) and medical procedures (laser, intense pulsed light).[vi]

This article highlights the importance of understanding the inflammatory nature of rosacea in order to choose the right treatments. Different therapeutic approaches are mentioned, including anti-inflammatory topicals (metronidazole, azelaic, kojic acid), systemic antibiotics, isotretinoin, and medical procedures such as lasers and intense pulsed light. [vii]

This article focuses on topical treatments for rosacea, including antibiotics (metronidazole, clindamycin), azelaic, ivermectin, and kojic acid. The importance of hydration and the use of sun protection as part of the comprehensive management of rosacea is also mentioned [viii]

In general, it can be concluded that the treatment of rosacea should be individualized and based on the severity of the symptoms and the presence of comorbidities. Different therapeutic options can be used, including topical, systemic and medical procedures. It is important to understand the inflammatory nature of rosacea in order to choose the right treatments

Regarding psychological treatment, one of the most promising approaches is cognitive-behavioral therapy (CBT). CBT can help people with rosacea identify and change the thoughts and behaviors that may contribute to the exacerbation of the disease's symptoms. [ix]

3.5. FORECAST

Based on this review, rosacea may be a chronic disorder, but it can be effectively controlled with treatment. The prognosis can also vary depending on the subtype of rosacea. Papulopustular and erythematotelangiectatic rosacea tend to be more persistent than type 1 and ocular rosacea. The progression of the disease can also vary, and some patients may develop serious ocular complications [x]

This article points out that rosacea can be a chronic, recurring disorder with occasional flare-ups. The prognosis may depend on the type and severity of symptoms, as well as the response to treatment. Patients with severe rosacea and ocular complications may experience a reduced quality of life.. [xi]

A chronic and progressive disorder, but it can be controlled with proper treatment. Prognosis may also vary by rosacea subtype, with erythematotelangiectatic and papulopustular rosacea being the most persistent subtypes and the most likely to cause nasal deformities. However, with early and proper treatment, complications can be avoided and progression of the disease can be prevented.. [xii]

4. CONCLUSIONS

Rosacea is a chronic skin disease that affects millions of people around the world. It is characterized by presenting facial erythema, flushing, telangiectasias, papules and pustules, among other symptoms. Its pathophysiology is complex and includes genetic, immunological, vascular and neurogenic factors.

Diagnosis is based on clinical presentation and must be differentiated from other skin diseases that may present similar symptoms. Treatment depends on the severity of the symptoms and may include lifestyle changes, topical and systemic medications, as well as laser therapies and other medical devices.

Although there is no cure for rosacea, with proper diagnosis and treatment, it can be controlled and significantly improve the quality of life of patients. Therefore, it is important that physicians are familiar with the symptoms and treatment options of this disease in order to provide effective and compassionate care to patients suffering from it.

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