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Review

Hormonal Acne: Diagnosis and Management

Ana Luísa Zilio Portelinha^{1*}, Ian Caldeira Ruppen^{1*}, Renam Arthur de Sousa¹, Lara Beatriz Dallaqua Bitiati¹, Camilla Antunes Zanini², Luhara Sechi Lorga Vieira¹, Yasmin Carvalho Lopes¹, Andressa Sabrina Carrara¹, Náyra Thais Afonso Sella¹, Nataly Doane de Oliveira¹, Giovanna Prieto Barbosa¹, Alan Henrique de Oliveira Torchi¹, Ana Beatriz Afonso Sella¹, Leticia de Paula Monteiro Oliveira¹, Allegra Pietrobon Masson¹, Giovanna Gregório Gonçalves Pereira¹, Paloma Carolyn Menger da Silveira¹, Maeva Izeppi Ochi¹ and Yasmin Lorrana Campana¹

¹Centro Universitário Ingá - Uningá, Maringá, PR, Brazil

²Faculdade Morgana Potrich, Mineiros, GO, Brazil

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***Corresponding author:** Ian Caldeira Ruppen, Centro Universitário Ingá - Uningá, Maringá, Paraná, Brazil, Email: Ian2ruppen@gmail.com

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ABSTRACT

Hormonal acne is a common dermatological condition, especially among adolescents and adult women, characterized by inflammatory lesions resulting from hormonal imbalances. Factors such as the menstrual cycle, pregnancy, contraceptive use and underlying pathologies like polycystic ovary syndrome (PCOS) directly influence the onset and progression of hormonal acne. Diagnosis is essentially clinical, based on a detailed assessment of symptoms, medical history and complementary laboratory tests when indicated. Clinical management is diverse and includes both topical and systemic treatments, such as retinoids, topical and oral antibiotics, combined oral contraceptives and anti-androgen therapies. In addition, complementary strategies such as dietary interventions, supplementation and stress management have demonstrated relevance in the comprehensive management of hormonal acne, emphasizing the importance of psychological support given the significant emotional and social impact of this condition.

Keywords: Hormonal acne; Sebaceous glands; Women; Polycystic ovary syndrome; Anti-androgen therapy

Introduction

Hormonal acne, also known as adult female acne, is a prevalent and complex clinical condition strongly associated with hormonal fluctuations and their effects on the sebaceous glands^{1,2}. It is particularly common in women of reproductive age but can affect individuals of any age, manifesting as papules, pustules and nodules often located in the lower facial and jawline regions. Unlike common adolescent acne, hormonal acne tends to be more persistent and recurrent, generally linked to the menstrual cycle, pregnancy or hormonal disorders such as polycystic ovary syndrome (PCOS)³. The pathophysiology

of hormonal acne is complex, involving multiple factors, with androgens playing a primary role. Hormones like testosterone and dihydrotestosterone (DHT) directly stimulate sebaceous gland production. Furthermore, these hormones trigger hyper keratinization of the hair follicle, leading to pore obstruction and the emergence of characteristic acne lesions. Underlying conditions such as PCOS or insulin resistance often exacerbate acne severity, further complicating the clinical picture⁴.

Genetic factors also play a crucial role in the development and persistence of hormonal acne. Individuals with a family history of acne often present more severe and persistent cases^{5,6}.

Environmental factors and lifestyle choices, such as poor diet, exposure to pollutants, use of comedogenic cosmetics and high stress levels, also significantly contribute to worsening the condition⁷. Hormonal acne has notable emotional implications, negatively affecting self-esteem and quality of life. Its psychological impact can be as debilitating as the physical manifestations, contributing to the development of anxiety and depression. Hence, a multidimensional approach is essential, addressing both the physical lesions and the emotional support required by affected individuals⁸.

Objectives

This study aims to review the main aspects related to the pathophysiology, diagnosis and clinical management of hormonal acne, highlighting modern and integrated therapeutic approaches designed not only to achieve remission of lesions but also to improve patients' quality of life.

Materials and Methods

A bibliographic review was performed, including articles published in the PubMed, ScienceDirect and SciELO databases to support this study.

Discussion

The clinical management of hormonal acne is a constant challenge due to its multifactorial nature and individual variability in therapeutic response⁹. Recent studies have reinforced the importance of early intervention and a multidisciplinary approach, especially in cases associated with PCOS. Early and accurate diagnosis, achieved through detailed clinical evaluations and specific laboratory tests such as hormone levels and pelvic ultrasound is essential for directing treatment appropriately^{10,11}. First-line therapy often involves the use of topical agents, such as retinoids and topical antibiotics, which help reduce pore obstruction and control bacterial colonization. However, in more severe cases, systemic treatments including oral antibiotics, combined contraceptives and anti-androgens like spironolactone become essential. These approaches have shown significant efficacy in reducing lesions and preventing new flare-ups.

Recent research also underscores the importance of personalized treatments, taking into account individual characteristics such as hormonal profiles, skin type and associated medical conditions. Emerging technologies, including blue light therapies, lasers and chemical peels, have shown promising results, especially when combined with traditional therapies¹². Furthermore, dietary interventions and stress management are increasingly recognized as essential complementary elements in the management of hormonal acne. Low-glycemic-index diets, reduced dairy intake and increased consumption of anti-inflammatory foods can help control acne manifestations, highlighting the need for a holistic approach¹³. Studies suggest that the use of probiotics may also help reduce acne severity by balancing the gut microbiota, which positively influences skin health. Psychological support, including cognitive-behavioral therapy and emotional counseling, is equally crucial. An integrated approach that addresses both physical and psychological aspects yields better therapeutic outcomes and greater patient satisfaction, reducing the risk of recurrence and the negative emotional impact associated with hormonal acne. Emotional management strategies and mindfulness practices

have also shown additional benefits in lowering emotional stress, which often aggravates the dermatological condition^{14,15}.

Conclusion

Hormonal acne is a prevalent dermatological condition that presents significant challenges for both patients and healthcare professionals due to its complexity and multidimensional impact. Understanding the underlying pathophysiological mechanisms especially the role of androgens in sebum overproduction and follicular hyper keratinization is key to accurate diagnosis and effective therapeutic interventions. The frequent presence of underlying conditions such as polycystic ovary syndrome (PCOS), insulin resistance and other hormonal imbalances demands an integrated, interdisciplinary approach for proper clinical management. A thorough diagnostic process based on detailed clinical evaluation, supported by specific laboratory tests (like hormone profiling and imaging studies), is the first critical step in guiding appropriate therapy. This allows for the identification not only of the severity of the dermatological condition but also of any underlying causes, providing a more effective and personalized treatment plan. Early diagnosis has proven to be a determining factor for better therapeutic outcomes, a reduced risk of dermatological sequelae (such as scarring and hyperpigmentation) and a marked improvement in patients' quality of life.

Clinical management of hormonal acne must be individualized, considering lesion severity, clinical history, previous treatment responses and comorbidities. Topical treatments such as retinoids, antibiotics and anti-inflammatory agents are essential in the initial stages and for milder lesions. Nonetheless, moderate to severe cases often require systemic interventions like combined oral contraceptives, anti-androgens (e.g., spironolactone) oral isotretinoin and systemic antibiotics. These therapies have shown significant efficacy in reducing acne manifestations and preventing recurrence, especially when effectively combined with complementary strategies. In addition to pharmacological interventions, non-pharmacological strategies play a crucial role in the therapeutic approach to hormonal acne. Dietary modifications, particularly reducing high-glycemic-index and dairy products, have yielded positive results in decreasing acne severity. Furthermore, the use of probiotics and anti-inflammatory supplements also offers potential benefits, reinforcing the importance of a holistic view of this dermatological condition. Psychological and emotional stress management often overlooked in traditional acne treatment deserves special attention due to its direct relationship with disease exacerbations. Techniques such as cognitive-behavioral therapy, Acceptance and Commitment Therapy (ACT) and mindfulness practices have proven effective in mitigating negative emotional impact, facilitating better adherence to treatment and more sustainable long-term outcomes.

The psychosocial impact of hormonal acne is significant and frequently underestimated in clinical practice. Affected patients may exhibit markedly reduced self-esteem, social withdrawal, anxiety and depression, substantially impairing their quality of life. Therefore, integrating psychological support into clinical management not only improves therapeutic response but also equips patients with essential tools to cope with the condition effectively and resiliently. Future prospects for managing hormonal acne are promising, as ongoing research continues to focus on the development of more effective and safer therapies,

as well as preventive strategies aimed at mitigating known triggering factors. Technological and scientific advances have led to the emergence of new treatments targeting the molecular and hormonal mechanisms involved in acne pathogenesis. Technologies such as light-based therapies, fractional lasers and chemical peels have shown promising potential as complementary therapies to traditional methods.

In conclusion, it is essential for healthcare professionals to remain up-to-date and attuned to the multiple facets of hormonal acne, adopting patient-centered approaches that are both personalized and integrated, addressing dermatological as well as psychological factors. Ongoing investment in medical education, clinical research and therapeutic innovation is vital for further improving the clinical management of this complex condition, delivering more effective and sustainable results that can positively transform the lives of affected individuals.

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