



The use of isotretinoin in the postoperative period of rhinoplasty in patients with thick skin

O uso da isotretinoína no pós-operatório de rinoplastia em pacientes com a pele espessa

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■ ABSTRACT

Introduction: The search for improved aesthetics and breathing has made rhinoplasty one of the most popular facial plastic surgeries. In addition to the technical challenges and surgical risks, the literature shows that the procedure is even more challenging in patients with thick and sebaceous skin due to the difficulty in modeling the nasal structures and the greater activity of the sebaceous glands. The prescription of oral isotretinoin in the postoperative period has been considered for this group of patients in order to obtain better aesthetic and healing results by reducing sebum production and decreasing hyperkeratinization. The objective was to gather articles on the efficacy of oral isotretinoin after rhinoplasty in patients with thick skin. **Method:** A bibliographic review was performed in the PubMed, Scielo, and Google Scholar databases using the descriptors “Isotretinoin”, “Acne”, “Scars”, “Laser”, and “Facial Plastic Surgery”. Inclusion criteria were established for articles published between 2016 and 2022. **Results:** According to the selected articles, isotretinoin has been frequently recommended for the treatment of nodular cystic acne. However, over the years, its use has shown benefits in other conditions, such as sebaceous gland hyperplasia, fibrosis, and the treatment of thick skin. Therefore, the association of this medication with plastic surgery is of great importance, especially when considering rhinoplasty. **Conclusion:** An individualized evaluation of the use of isotretinoin in the postoperative period of rhinoplasty is recommended, with periodic monitoring of the results and local and systemic adverse effects in the indicated cases.

Keywords: Isotretinoin; Acne keloid; Cicatrix, hypertrophic; Lasers; Plastic surgery procedures; Rhinoplasty.

■ RESUMO

Introdução: A busca por melhorar a estética e a respiração tornou a rinoplastia uma das cirurgias plásticas faciais mais populares. Além dos desafios técnicos e riscos cirúrgicos, a literatura demonstra que o procedimento é ainda mais desafiador em pacientes com pele grossa e sebácea, devido à dificuldade de modelar as estruturas nasais e à maior atividade das glândulas sebáceas. A prescrição de isotretinoína oral no pós-operatório tem sido considerada para esse grupo de pacientes, a fim de obter melhores resultados estéticos e cicatriciais, através da redução da produção de sebo e da diminuição da hiperqueratinização. O objetivo foi reunir artigos sobre a eficácia da isotretinoína oral após a rinoplastia em pacientes com pele grossa. **Método:** Foi realizada uma revisão bibliográfica nas bases de dados PubMed, Scielo e Google Acadêmico, utilizando os descritores “Isotretinoína”, “Acne”, “Cicatrizes”, “Laser” e “Cirurgia Plástica Facial”. Foram estabelecidos critérios de inclusão para os artigos publicados no período de 2016 a 2022. **Resultados:** De acordo com os artigos selecionados, a isotretinoína tem sido frequentemente recomendada para o tratamento da acne cística nodular. No entanto, ao longo dos anos, seu uso

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tem demonstrado benefícios em outras condições, como hiperplasia das glândulas sebáceas, fibrose e no tratamento de pele espessa. Dessa forma, a associação deste medicamento com a cirurgia plástica é de grande importância, especialmente quando consideramos a rinoplastia. **Conclusão:** Recomenda-se a avaliação individualizada do uso da isotretinoína no pós-operatório da rinoplastia, com monitoramento periódico dos resultados e dos efeitos adversos locais e sistêmicos nos casos indicados.

Descritores: Isotretinoína; Acne queiloide; Cicatriz hipertrófica; Lasers; Procedimentos de cirurgia plástica; Rinoplastia.

INTRODUCTION

Rhinoplasty is a common procedure in facial plastic surgery, but patients with thick, sebaceous skin present an additional challenge. Patients from certain ethnic groups, such as mixed race/Hispanic, Asian, African-American, and Middle Eastern individuals, have a nasal structure characterized by a weak underlying bony and cartilaginous structure covered by a soft tissue envelope of thick skin, which makes them prone to acne¹.

Patients with thick, oily skin are a common challenge in rhinoplasty, as thick skin can make the nose undefined, resulting in nasal tip and supratip deformities. Increased activity of the sebaceous glands or hyperplasia of the pilosebaceous units is a contributing factor².

The use of isotretinoin in the postoperative period of rhinoplasty in patients with thick skin has been the subject of intense debate regarding its efficacy and safety³. Isotretinoin reduces sebum production and decreases hyperkeratinization and the output of *Propionibacterium acnes*, making it a drug of interest in plastic surgery⁴.

OBJECTIVE

This scientific article aims to review studies published in the last 7 years on the use of isotretinoin in post-rhinoplasty surgery in patients with thick skin in order to summarize the evidence and scientific information about the effectiveness of this treatment.

METHOD

A bibliographic review was carried out in the PubMed, SciELO, and Google Scholar databases using the descriptors “Isotretinoin”, “Acne”, “Scars”, “Laser,” and “Facial Plastic Surgery”. Inclusion criteria were articles published between 2016 and 2022, while articles published before that date were excluded from the study.

RESULTS

A total of 108,191 articles were found in the SciELO, PubMed, and Google Scholar databases. Of these, 69,099 were related to the descriptor isotretinoin, and 29,330 were related to the descriptors isotretinoin and acne, representing 27% of the total. In the SciELO database, a total of 10 articles were found, of which only 1 related to rhinoplasty was selected. In the PubMed database, 7,374 articles were found, of which 3 were related to rhinoplasty. In the Google Scholar database, 100,760 articles were found, of which 2 were related to rhinoplasty.

DISCUSSION

According to the articles selected for the literature review, isotretinoin was usually recommended for the treatment of nodular cystic acne². Thus, the association of this medication with the area of plastic surgery is very important, especially when considering rhinoplasties⁵. Based on the literature reviewed, the main applications of isotretinoin in plastic surgery are acne, scars, sebaceous gland hyperplasia, and thin and thick-skinned patients undergoing rhinoplasty. Isotretinoin therapy also impacts the thickness and elasticity of the dermis, nasal skin, soft tissue, glabella, nasion, and rhine³.

Furthermore, the reviewed literature evaluates evidence-based recommendations on the safety of procedural interventions performed simultaneously or immediately after cessation of systemic isotretinoin therapy and its oral use after rhinoplasty, highlighting the cosmetic results in patients with thick-skinned noses¹.

In the study “Oral Isotretinoin in the Treatment of Postoperative Edema in Thick-Skinned Rhinoplasty: A Randomized Placebo-Controlled Clinical Trial”¹, the use of isotretinoin in the postoperative period for the treatment of acne and thick skin was compared to the group that used placebo medication. It was concluded that, after 3 and 6 months of surgery, it was significantly

better in the group that used isotretinoin; however, after a period of 12 months, there was no aesthetic difference between the two groups.

However, some adverse effects were reported by the group that used isotretinoin, such as nasal dryness and bloody discharge and were treated with topical lubricant. Thus, it was concluded that the use of isotretinoin has positive results for the treatment of thick skin in the first months after surgery; however, 12 months after the procedure, it did not significantly affect the outcome when compared to the other group¹.

It is important to highlight that the article “Analysis of the Effects of Isotretinoin on Rhinoplasty Patients”⁴ reinforces the idea seen in the previous item. In this article, the patients evaluated were divided into two groups, one using isotretinoin and the other a placebo group. After surgery, they underwent a satisfaction test at 1, 3, 6, and 12 months after the procedure. It was reported that in the first months (1 and 3), the group using isotretinoin presented a better evaluation than the placebo group. However, over time, this difference remained slightly higher in the group using the medication.

At the end of the period, 12 months after surgery, the level of satisfaction of both groups was similar. It was noted, throughout the treatment, a greater reduction in the oiliness of the skin on the face in the group that received medication than in the control group, in addition to the fact that the severity of acne was considered greater in the first month after surgery in the group that used the medication than in the group without medication⁴.

However, when the severity of acne was compared at months 3 and 6, the experimental group was lower than the control group, but this difference was not statistically significant. At the final examination, the results of acne severity were similar in both groups and were assessed as comparable to preoperative levels. After all follow-up examinations, a test was performed in which the average scores of the two groups were added together, and it was noted that the group that used isotretinoin had higher average satisfaction than the group that did not use it within one year in addition to the total average frequency of easy acne in the experimental group being lower than in the control group. A quantitative evaluation of the healing status and possible deformities of the nasal cartilage was performed, which indicated that there was no delay in the repair process⁴.

In this study, all patients in the control group had a significant improvement in the appearance and texture of the skin of the nose and face, which appeared more defined than in their preoperative images. In

conclusion, the study found that isotretinoin does not seem to induce major repair of the nose and recovery problems after rhinoplasty. However, the authors believe that it is possible to take advantage of the positive effects of this drug to reduce skin thickness, skin oiliness, and acne in patients with oily and thick skin with or without acne before surgery⁴.

The authors report in the article “Isotretinoin Use in Thick-Skinned Rhinoplasty Patients”⁵ the main problems faced by plastic surgeons when performing rhinoplasty, with the most challenging issues being patients with thick skin, resulting in an undefined nasal tip and poor projection, rotation, and deformities in the supratip region. In addition, they mention that patients are heterogeneous, that is, of different ethnicities; some of them have fibroadipose tissue that plays an important role, as this tissue covers the nasal tip and supratip area, covering the alar cartilages.

Another recurring issue is that rhinoplasties are often performed on young or adolescent patients in whom acne is highly prevalent. It is also reported that in the first months after rhinoplasty, there is a 27% increase in acne when compared with functional nasal surgery. With this, the study argues for the use of isotretinoin, which has proven to be very effective, especially when compared to other treatments. Isotretinoin presents good results in defining the nasal tips and in post-surgical exacerbations of acne without exposure to unpredictable surgical procedures that can result in unwanted deformities or scars⁵.

It is important to note that isotretinoin was initially approved by the Food and Drug Administration (FDA) for severe nodulocystic acne in 1982. For decades, there has been vigorous debate about combining isotretinoin with additional interventional or invasive procedures. Isotretinoin use may not only influence wound healing and epithelialization but may also affect the healing of other types of tissue, such as cartilage, bone, and skeletal muscle, or interfere with blood clotting.

As discussed in the article “Indications and Use of Isotretinoin in Facial Plastic Surgery”², the dosage is determined by body weight and generally ranges from 0.5 to 1.0 mg/kg daily to achieve a total cumulative dose of 120 to 180 mg/kg. External and clinical experience increasingly challenges the rule of discontinuing isotretinoin for at least 6 months before any cosmetic or surgical procedure. Most of the adverse events reported in the early case series could not be confirmed in more recent prospective studies. However, randomized and adequately controlled trials are still scarce. Similarly, pharmacovigilance data on the use of isotretinoin in the setting of facial plastic surgery² are lacking.

Low-dose regimens have been shown to be safe in clinical practice and have yielded good results in patients with thick, porous skin undergoing rhinoplasty and superficial peels. Dosing and monitoring should be orchestrated in an interdisciplinary setting and supervised by specialists. Preoperative and follow-up laboratory evaluations are recommended in both standard and low-dose protocols to monitor for potential systemic side effects such as liver toxicity or rhabdomyolysis.

Nevertheless, it is extremely important to demonstrate the safety of procedural interventions performed simultaneously or immediately after cessation of systemic therapy with isotretinoin. In the article "Isotretinoin and Timing of Procedural Interventions: A Systematic Review With Consensus Recommendations"⁶, 32 relevant publications were found, reporting 1484 procedures. Among these, dermabrasion is mentioned, which consists of using a diamond burr or a wire brush/diamond box attached to a motorized handle⁶.

Based on the existing literature, abnormal scarring may be associated with mechanical dermabrasion in the setting of recent isotretinoin use; however, it is not recommended. In contrast to mechanical dermabrasion, there is insufficient evidence to delay manual microdermabrasion or for patients who are concurrently receiving or have recently completed isotretinoin therapy⁶.

Additional specific, well-controlled clinical trials are recommended. Favorable outcomes have been reported for patients using systemic isotretinoin during a chemical peel. Two cohort trials have reported favorable cosmetic outcomes in the setting of isotretinoin use, with no adverse effects on healing. Forty-five peels were performed in 20 patients treated concomitantly with low-dose isotretinoin, demonstrating statistically significant cosmetic improvement in aging compared with patients not taking isotretinoin. Patients who underwent cutaneous surgery while receiving systemic isotretinoin reported good healing without sequelae⁶.

However, important information reported in the article was related to the specific scenario of major reconstructive surgery that requires mobilization of muscle flaps. Patients who used isotretinoin had creatine phosphokinase (CPK) levels greater than twice normal. This fact may present an uncommon risk factor for muscle flap failure, the rhabdomyolysis, suggesting that surgery should be delayed until the patient reproduces normal CPK levels or, at least, CPK levels below twice normal⁶.

An important caveat to this study is that immunosuppressed transplant recipients are typically

an older cohort compared to the adolescent acne population. Additionally, they may be less likely to develop hypertrophic scarring. Finally, laser use was also mentioned despite being the most studied category of procedures when it comes to isotretinoin use. Consensus recommendations state that there is insufficient evidence to delay light-based laser removal for patients who are currently on or have recently completed isotretinoin therapy. Additional prospective, well-controlled clinical trials are also recommended⁶.

Furthermore, there are several case series and one randomized clinical trial that support normal wound healing after both ablative and non-ablative fractional laser treatment in patients receiving isotretinoin. With the information presented in this article, clinicians could have an evidence-based discussion with patients about the known risk of cutaneous surgical procedures in the context of systemic isotretinoin treatment. For some patients and some conditions, an informed decision may lead to earlier and potentially more effective interventions⁶.

CONCLUSION

Given the scenario presented, the benefits of isotretinoin in the postoperative period of some plastic surgeries are debatable. Like any other medication, it also has side effects that can interfere with the healing process and, although they can be overcome, should be considered when assessing the risk-benefit of its use. Among the indications observed for the greatest benefit of the medication are rhinoplasty in patients with thick skin, who may develop scar deformities, and in young people or adolescents, in whom there is an increase in postoperative acne. Therefore, individual evaluation of the use of isotretinoin in the postoperative period is recommended, with periodic monitoring of the results and local and systemic adverse effects in the indicated cases.

COLLABORATIONS

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| LMF | Analysis and/or data interpretation, Data Curation, Final manuscript approval, Formal Analysis, Project Administration, Supervision, Validation, Writing - Review & Editing. |
| CTPR | Data Curation, Investigation, Methodology, Writing - Original Draft Preparation. |
| IAML | Analysis and/or data interpretation, Data Curation, Funding Acquisition, Software, Supervision. |
| LAM | Data Curation, Formal Analysis, Realization of operations and/or trials. |

MLON Data Curation, Realization of operations and/or trials, Supervision, Visualization.

RCPC Analysis and/or data interpretation, Data Curation, Methodology, Validation, Writing - Review & Editing.

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