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LETTER TO THE EDITOR

Intralesional corticosteroids: an overview of availability, dilution, and standardization across dermatological practices in Portugal

Corticosteroides intralesionais: uma visão geral da disponibilidade, diluição e padronização nas práticas dermatológicas em Portugal

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Dear Editor,

Intralesional corticosteroids (ILCS) are commonly used in dermatology as one of the primary therapeutic options for numerous conditions, including keloids, hypertrophic scars, alopecia areata, and inflammatory dermatoses, among others[1]. Their ability to deliver high concentrations of corticosteroids directly to the lesion, while minimizing systemic exposure, has contributed to their popularity. Diseases for which ILCS are particularly valuable are extensive, making these treatments indispensable for dermatologists[1].

One of the most critical aspects of administering ILCS is the proper dilution of the drug[2,3]. The potency of ILCS can lead to complications if not administered correctly, especially in sensitive areas such as the face, where the skin is thin. The most common side effects of improperly diluted corticosteroids include cutaneous atrophy, pigmentary changes, vascular complications and, in rare cases, systemic absorption leading to adrenal suppression[2-6].

Cutaneous atrophy is particularly concerning in long-term use, as it results in the thinning of the skin and subcutaneous tissues, creating a visible depression or even ulceration at the injection site. In addition, telangiectasias and purpura may occur. Pigmentary changes are also frequently observed, with either hyperpigmentation or hypopigmentation occurring, depending on the individual's skin type. These side effects are often dose-dependent, further underscoring the importance of correct dilution[2-6].

Unfortunately, the availability of different types of ILCS varies greatly across countries. In some regions, there are only a few options available, which may limit treatment choices for dermatologists. Triamcinolone acetonide (e.g., Trigon Depot®), accessible in countries such as Spain[5] and the United States, is the most widely studied corticosteroid for intralesional use; however, it is not commercialized in Portugal, being only available by an Especial Authorization Procedure (an importation procedure) given by the Portugal National Health Authority, INFARMED.

Available corticosteroids with licensed intralesional usage in Portugal are methylprednisolone acetate (Depo-Medrol®), dexamethasone sodium phosphate (Dexametasona Pharmakern®), and Diprofos Depot®. The latter is likely the most frequently used alternative in clinical practice according to authors' experience. It is provided in 14 mg/ 2mL vials, which includes both a fast-acting component (betamethasone sodium phosphate) and a long-acting component (betamethasone dipropionate). The dual-phase release mechanism makes Diprofos Depot® effective for both immediate and sustained anti-inflammatory action[6].

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Table 1. Equipotent concentrations of triamcinolone acetonide and betamethasone base

Corticosteroid	Equipotent concentration (mg)
Triamcinolone acetonide	4.4
Betamethasone base	0.75

Table 2. Equipotent concentrations and appropriate dilutions of ILCS

Triamcinolone acetonide (mg/mL)	Betamethasone (mg)*	CS (mL)†	NS 0.9% (mL)†	Dilution (CS:NS)
40	7	1	0	1:0
20	3.50	0.50	0.50	1:1
10	1.75	0.25	0.75	1:3
5	0.88	0.12	0.88	1:7
2.5	0.44	0.06	0.94	1:15

*Using 5.87 × (= 4.4/0.75) as equipotent conversion rule.
†Minor adjustments to volumes were made to respect syringe accuracy of two decimals (ex. insulin syringe of 1 mL).
Dilutions should be done according to drug label with normal saline (NS) 0.9% or lidocaine 1-2%. To simplify calculations while minimizing clinical impact, 6.8 was regarded as 7 mg of betamethasone. Calculations were made to a final volume of 1 mL. For higher volumes, the following values should be multiplied accordingly.
CS: corticosteroid; NS: normal saline; ILCS: intralesional corticosteroids.

A common challenge for clinicians is the lack of standardized guidelines on dilution for different types of corticosteroids. Understanding how to convert between different corticosteroids is essential due to variations in their availability and potency. This knowledge can help avoid overtreatment or undertreatment, both of which may compromise clinical outcomes.

To assist clinicians in standardizing the use of ILCS, the following table provides equipotent conversion data from triamcinolone acetonide to betamethasone (Tables 1 and 2). These tables offer practical guidance for ensuring that patients receive an equivalent therapeutic dose, regardless of which corticosteroid of the two is used.

Additional considerations are also important to ensure optimal outcomes, such as preparing the dose immediately before injection and gently shaking or rolling the syringe beforehand to ensure the drug is evenly suspended. It is also recommended to use a maximum of 30-40 mg triamcinolone acetonide (or its equivalent) per session[7,8]. Specific injection techniques such as steroid concentration, delivered volume, depth, and spacing of injections depend on both disease and patient characteristics and should be taken in consideration to achieve consistent results[8].

As a rough guide, 4 mg of triamcinolone is equivalent in anti-inflammatory activity to about 0.75 mg of betamethasone[7]. The dose is expressed in terms of the base, so it will be necessary to consider the equivalence between triamcinolone base and triamcinolone acetonide. In this case, 11 mg of triamcinolone acetonide is equivalent to 10 mg of triamcinolone base[7].

However, esterification generally alters potency, and compounds given at equivalent glucocorticoid doses may not have equivalent clinical effect[7].

In summary, thorough knowledge of available ILCS and appropriate conversion between alternative corticosteroids is essential for an effective and safe dermatological practice.

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Conflicts of interest

None.

Ethical considerations

Protection of people and animals. The authors declare that no experiments involving humans or animals were conducted for this research.

Confidentiality, informed consent, and ethical approval. The study does not involve patient personal data nor does it require ethical approval. The SAGER guidelines are not applicable.

Declaration on the use of artificial intelligence. The authors declare that no generative artificial intelligence was used in the drafting of this manuscript.

References

1. Schadt CR, Jackson SM. Glucocorticoids. In: Bolognia JL, Schaffer JV, Cerroni L, editors. Dermatology. 5th ed. Philadelphia, PA: Elsevier; 2024. p. 2217-30.
2. Melo DF, Dutra TB, Baggieri VM, Tortelly VD. Intralesional betamethasone as a therapeutic option for alopecia areata. An Bras Dermatol. 2018;93:311-2.
3. De Sousa V, Arcanjo FP, Aguiar F, Vasconcelos J, Oliveira AF, Honório A, et al. Intralesional betamethasone versus triamcinolone acetonide in the treatment of localized alopecia areata: a within-patient randomized controlled trial. J Dermatol Treat. 2022;33:875-7.
4. Czock D, Keller F, Rasche FM, Haussler U. Pharmacokinetics and pharmacodynamics of systemically administered glucocorticoids. Clin Pharmacokinet. 2005;44:61-98.
5. Bristol-Myers Squibb. Trigon Depot®. Revised 08-2024 by AEMPS. Madrid, Spain: Bristol-Myers Squibb, S.A.; 2024. Consulted 2024 Dec 27. Available from: https://cima.aemps.es/cima/dochtml/p/44901/Prospecto_44901.html
6. Organon. Diprofos Depot®. Revised 03-2023 by INFARMED. Portugal: Organon. Consulted 2024 Dec 27. Available from: https://extranet.infarmed.pt/INFOMED-fo/detalhes-medicamento.xhtml
7. Brayfield A, editor. Corticosteroids. In: Martindale: The Complete Drug Reference. 39th ed. London: Pharmaceutical Press; 2017. p. 1629-83.
8. Deshmukh NS, Belgaumkar VA, Mhaske CB, Doshi BR. Intralesional drug therapy in dermatology. Indian J Dermatol Venereol Leprol. 2017;83:127-32.