

Immediate Allergic Reaction to Hydrocortisone Hemisuccinate: About A Case and Literature Review

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Abstract

Case Report

Corticosteroids are widely prescribed in the treatment of respiratory or allergic pathologies due to their anti-inflammatory and immunomodulating properties. Their side effects are well known, but allergic reactions are more rare and unexpected. These reactions can be severe up to anaphylactic shock, toxidermies or serious respiratory manifestations, regardless of their mode of administration. An allergological investigation with tests are necessary to specify the responsible treatment and propose an alternative therapeutic if necessary. We report in this article the case of an immediate allergy to hydrocortisone hemisuccinate in a patient with asthma.

Keywords: Allergy, Hydrocortisone hemisuccinate, Asthma, Corticosteroids.

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INTRODUCTION

Corticosteroids are the cornerstone of the treatment of asthma, used both in a acute state as and also during exacerbations.

With anti-inflammatory and immunomodulatory properties, corticosteroids are widely used in the treatment of allergic manifestations but in some cases, they can be the cause of real immediate or delayed allergic hypersensitivity reactions.

We report in this article the case of an immediate allergy to hydrocortisone hemisuccinate in a patient with corticoid dependant asthma.

CLINICAL CASE

Mrs B.K aged 46, housewife is a known asthmatic for 5 years; was treated for difficult corticoid dependent asthma and chronic rhino-sinusitis; the patient was placed on fixed combination (Fluticasone+Salmeterol), oral corticosteroids, Antileucotriene, Salbutamol on demand as well as symptomatic treatment of allergic rhinitis. It also has an intolerance to non-steroidal anti-inflammatory drugs (NSAIDs), allergic to Paracetamol and Penicillin.

She was hospitalized for asthma attack following an acute exacerbation of her rhino-sinusitis. Clinical examination at admission objectified a blood

pressure of 100/60 mmHg, respiratory rate at 28/min and normal oxygen saturation with signs of respiratory distress and bilateral wheeze.

Laboratory analysis revealed a normal blood count with a 10-element/ μ l eosinophil level, no leukocytosis with a negative CRP.

Her chest radiograph showed a thoracic distension with enlarging intercostal spaces

Upon admission, the patient was given ventolin nebulization and Hemisuccinate hydrocortisone (HSHC) injections, without any other medication.

On the first day of her hospitalization, the patient developed a generalized erythematous pruriginous maculopapular rash [Figure 1; 2; 3] and ecchymotic lesions in the thighs [Figure 4], and on the third day she developed facial edema 30min to 1h after the HSHC injection.

The diagnosis of allergy to hydrocortisone hemisuccinate was mentioned, a food allergy, another drug intake or application of local products were eliminated by interrogation, the rate of eosinophilic polynuclear increased from 10 to 860 elements/ μ l. It should be noted that the patient had a similar

symptomatology during her last one-month hospitalization following HSHC bolus.

The management was to stop the HSHC, to put the patient on oral corticosteroid based on Prednisolone and antihistamine, an improvement was seen in 24 hours.



Fig-1, 2: Images showing erythematous macular lesions in the arm and forearm



Fig-3: Image showing scratch lesions on the trunk



Fig-4: Image of ecchymotic lesions in the thighs

DISCUSSION

Our patient had an immediate reaction with skin manifestations suggesting an immediate allergic reaction. Indeed, the first cases of allergy to corticosteroids were described in the late 1950s following local application and injection of hydrocortisone [1-3]. Apart from the manifestations of delayed hypersensitivity to type of contact eczema encountered during the use of local corticosteroids, the immediate allergic accidents secondary to the use of systemic corticosteroids remain exceptional; their prevalence is estimated to be between 0.1% and 0.3% based on published cases [4, 5].

Hypersensitivity is manifested by anaphylactic or anaphylactoid reactions. The most commonly implicated drugs are injectable hydrocortisone and methylprednisolone [6] while halogenated derivatives (dexamethasone and beta-amethasone) are very rarely used [7]. Additives or excipients in the preparation are also implicated, including sulphites.

The clinical signs are not specific making the diagnosis difficult, they are type of skin reactions (pruritus, urticaria, and angioedema), bronchospasm, nausea, vomiting, severe anaphylactic reactions or even a state of shock with cardiac arrest [8].

Bronchospasm in asthmatic is the most common sign. It appears most often in a short time. It is dose-dependent and is often associated with skin signs such as hives [9]. Its frequency and severity are underestimated because it can be confused with the autonomous exacerbation of asthma. It is more common in aspirin allergic patients [10].

Risk factors for developing an allergy to systemic corticosteroids have not been studied. However, it seems that these reactions are more frequent in: asthmatic subjects [11,12], patients chronically treated with systemic corticosteroids because of their pathology [13]; However, it is difficult to determine whether the higher incidence of allergy to corticosteroids is due to higher susceptibility or simply higher exposure [8]. Other factors such as female sex and hypersensitivity to aspirin are also present [14]. This is the case with our patient.

The diagnosis is based on a clear and rigorous examination specifying: the patient's history (notion of previous allergic accidents, family history of drug allergies), the nature of the symptoms presented, their chronology (previous contacts, onset time after last taken, effect of stopping the drug), the possible taking of other treatments or foods at the time of the reaction and also looking for any sign of seriousness. Skin tests can then provide additional positive or negative arguments [15], immediate allergic hypersensitivity reactions can be detected by prick-tests (concentration of 1mg/ml) and by early reading IRDs (30 min) if the

prick-test is negative. Systemic reintroduction tests can be performed in case of negative skin balance, in hospital, with the suspected corticosteroid as well as with other ingredients that may also be involved.

Management is based on the immediate cessation of the offending product and its eviction [16], as well as antihistamine administration, adrenaline in case of shock and symptomatic treatment. In most of the cases described and as in our clinical case, patients with an immediate allergy to esterified glucocorticoids tolerate the reintroduction of unesterified glucocorticoids [7].

CONCLUSION

Allergic hypersensitivity to corticosteroids is not an exceptional phenomenon, the clinical diagnosis is not always obvious and the symptomatology is often misleading and non-specific. Their diagnosis should not be neglected and a well conducted allergy investigation should be carried out both to confirm the diagnosis and to propose a therapeutic alternative to the offending molecule

REFERENCES

- Burckhardt W. Kontaktekzem durch hydrocortisone. *Hautarzt*. 1959; 10:42–3.
- Kooij R. Hypersensitivity to hydrocortisone. *Br J Dermatol*. 1959; 71:392–4.
- Kendall PH. Untowards effects following local hydrocortisone injection. *Ann Phys Med*. 1958;4:170–5.
- Klein-Gitelman AS, Pachman LM. Intravenous corticosteroids: adverse reactions variable than expected in children. *J Rheumatol*. 1998; 25:1995-2002.
- Freymond N, Catelain A, Queille E, Augey F, Nicolas JF. Allergic reaction to methylprednisolone. *Rev Med Int*. 2003;24:698-700.
- Just N. La revue de médecine interne. 2005; 26: 331–334
- Izquierdo L. Allergy to methylprednisolone hemisuccinate in a patient with stress vocal cord dysfunction. *Rev Fr Allergol*; 2019.
- Baeck M. *Revue française d'allergologie*. 2010; 50 : 146–162
- Judson MA, Sperl PL. Stacus asthmaticus with acute decompensation with therapy in at 27 year old woman. *Chest*. 1995; 107: 563-4.
- El Mekki F, Belhadj S, Taktak S, Abouda M, Hamzaoui A, Ghedira H. Allergie cutanée à l'hémisuccinate d'hydrocortisone chez une asthmatique. *La Presse Médicale*. 2004 May 1;33(9):604-6.
- Karsh J, Yang WH. An anaphylactic reaction to intra-articular triamcinolone: a case report and review of the literature. *Annals of Allergy, Asthma & Immunology*. 2003 Feb 1;90(2):254-8.
- Nakamura H, Matsuse H, Obase Y, Mitsuta K, Tomari S, Saeki S, Kawano T, Kondo Y, Machida I, Shimoda T, Asai S. Clinical evaluation of anaphylactic reactions to intravenous corticosteroids in adult asthmatics. *Respiration*. 2002;69(4):309-13.
- Kamm GL, Hagemeyer KO. Allergic type reactions to corticosteroids. *Ann Pharmacother*. 1999; 33:451–60.
- Just N, Nyunga M, Lelong J, Wallaert B. Immediate allergy to oral corticosteroids. *Rev Med Internal*. 2005; 26:331–4.
- Bourrain JL. *Rev Fr Allergol Immunol Clin*. 2002; 42: 57-60
- Nakamura H, Matsuse H, Obase Y. Clinical evaluation of anaphylactic reactions to intravenous corticosteroids in adult asthmatics. *Respiration*. 2002; 69: 309-13.