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REVIEW

Hay fever and a single intramuscular injection of corticosteroid: a systematic review

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KEYWORDS
Hay fever;
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Efficacy;
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Abstract
Objectives: In severe hay fever, some patients are strongly affected despite the use of first-line therapy and are therefore treated with an intramuscular injection of systemic corticosteroid (i.m. SCS) in some countries. The aim of this paper was to explore the efficacy and side effects of a single i.m. SCS injection in hay fever in adults.
Data sources: PubMed, EMBASE, Cochrane Library.
Methods: Systematic review. Criteria for inclusion: hay fever or seasonal allergic rhinitis, adults, injectable steroids, clinical trials, English language. None of the clinical trials were excluded, since an important aim of the review was to identify any possible side-effects. Outcome measures: clinical effects, and clinical and physiological side-effects.
Results: 18 clinical trials met the inclusion criteria: nine double-blind RCTs (five placebo-controlled and four comparative RCTs), two single-blinded RCTs, and seven open trials. All studies were conducted before 1988. The efficacy of a single intramuscular injection of SCS was statistically significant in all five placebo-controlled trials and demonstrated considerable clinical benefit, lasting approximately from within the first day to four weeks. In the only two studies comparing i.m. SCS to nasal steroids a superior effect with i.m. SCS was demonstrated. The side-effects were few, both clinically and physiologically, with retained ability to respond to stress with hypothalamic-pituitary-adrenal activation.
Conclusions: The studies in this review were sound and their findings consistent: i.m. SCS therapy was shown to be efficient and safe for the treatment of hayfever in adults. This review shows no support for any concerns regarding serious tissue atrophy or other serious side-effects, any long-lasting suppression of plasma-cortisol, or any influence on stress reaction, following a single intramuscular injection of SCS.

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Contents

Introduction

The prevalence of hay fever (seasonal allergic rhinitis) is 10-20% in adolescence [1]. Generally, hay fever starts between the ages of 10 and 20 with peak severity in early adulthood and with a tendency to spontaneous remission [2].

The majority of hay fever patients are well treated by the use of first-line medication (an individual combination of nasal steroids, systemic and topical antihistamines, leukotrienes or cromones) [3]. However, a smaller group of patients with severe hay fever do not obtain symptomatic relief from first-line therapy and some of these patients—an estimated 12% of hay fever cases in Denmark [4] and 11% in the UK [5] — are given an intramuscular injection of systemic corticosteroid (i.m. SCS) at the onset of the allergy season. Other countries appear to use i.m. SCS less often [6].

International reports on allergic rhinitis rarely recommend i.m. SCS because of possible side-effects [7—10]. However, the only prior review on this topic established, ''that the reviewed data do not support the fear of a long-lasting suppression of hypothalamic-pituitary-adrenal (HPA) function from a single injection of i.m. SCS'', but states that, ''the lack of controlled studies has left us with uncertain guidelines'' [11].

A Danish register study of clinical side-effects from i.m. SCS [30] reported only a minute number of adverse effects. Within a 10-year period from 1985—94 a total of 26 side-effects were registered out of an estimated total sale of 330,000 i.m. SCS doses for hay fever; these consisted of two cases of subcutaneous atrophy, five local reactions and one change in skin pigmentation, while the remaining 18 cases were reversible minor problems.

Given the fact that i.m. SCS is used regularly in some countries, but that its use is discouraged by the international guideline recommendations, the aim of this systematic review was to evaluate the reported effects and side-effects of a single injection of i.m. SCS in patients with hay fever.

Methods

Search strategy

PubMed, EMBASE and Cochrane Library databases, in 2003. The search terms were: (hay fever OR allergic rhinitis) AND (injectable steroids OR systemic steroids OR depo-steroids) AND clinical trial. The search strategy in PubMed yielded 82 hits, of which eight articles included clinical trials with i.m. SCS [14—16,18—22]. From cross-referencing, we identified another ten studies meeting the search criteria. All studies were conducted before 1988. No further studies were found in EMBASE or the Cochrane Library.