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Adrenal insufficiency in corticosteroids use: systematic review and meta-analysis

Abstract

Background: Corticosteroids are widely used for various inflammatory conditions, malignancies or after organ transplantation. The aim of corticosteroid use is inhibition of an inflammatory response. However, corticosteroids have several side effects, an important being adrenal insufficiency. We aimed to estimate percentages of patients with adrenal insufficiency after treatment with corticosteroids for various conditions in a meta-analysis. Secondly, we aimed to stratify the results by route of administration.

Methods: We searched electronic databases in February 2014 to identify potentially relevant studies. Original articles, in adult persons using corticosteroids being tested for adrenal insufficiency, were eligible. Risk of bias analysis was performed for all included studies. Proportions were pooled in a random effect logistic regression, or in a fixed logistic regression if the number of studies for a subgroup was <5.

Results: The percentages of patients with adrenal insufficiency after corticosteroid use will be stratified by disease and route of administration (oral, transdermal, intranasal, inhalation and intra-articular). Preliminary results show a percentage of adrenal insufficiency up to 50. Also after treatment with locally acting corticosteroids such as intranasal (about 10-15%) or inhalation corticosteroids (15-20%), adrenal insufficiency was shown.

Conclusions: Appropriate testing of adrenal functions showed adrenal insufficiency in a considerable part of patients treated with corticosteroids. The results of this meta-analysis will be used to formulate recommendations for screening for adrenal insufficiency in patients treated with corticosteroids. Whether adrenal insufficiency is solely caused by corticosteroids, or whether underlying diseases also contribute, cannot be inferred from our analysis.