Effects of corticosteroid on Henoch-Schonlein purpura: a systematic review

CRD summary
The authors concluded that the early administration of corticosteroids to patients with Henoch-Schonlein purpura appeared to improve several clinically relevant outcomes. Limited evidence from a small number of studies appeared to support the authors’ conclusions, but the lack of reporting of study quality made it difficult to comment on the reliability of these conclusions.

Authors' objectives
To evaluate the effects of corticosteroids on patients with Henoch-Schonlein purpura (HSP).

Searching
MEDLINE (1956 to January 2007) and Cochrane Controlled Trials Register were searched using reported search terms. No language restrictions were applied. Reference lists of included studies were screened. Study authors were contacted for details of published and unpublished studies.

Study selection
Randomised controlled trials (RCTs) and observational studies that evaluated the effects of corticosteroids for the treatment of Henoch-Schonlein purpura (HSP) were eligible for inclusion. Case reports had to include five or more patients with Henoch-Schonlein purpura. Studies that only included patients with nephritis and studies that focused on adults (aged >18 years) were excluded. The review assessed the following outcomes for corticosteroids compared with routine supportive care: resolution of abdominal pain; surgical intervention for severe abdominal pain or intussusception; Henoch-Schonlein purpura recurrence; cumulative renal abnormalities; and persistent renal abnormalities.

Where reported, the corticosteroid dose in the included studies ranged from 1 mg/kg to 2.5 mg/kg; several studies increased the dose to between 3 mg/kg and 45 mg/kg if abdominal pain was present for more than 48 hours. Treatment duration ranged from three to 32 days. All of the included RCTs and a quarter of retrospective studies reported that they only included patients who started treatment at diagnosis; at least a quarter of retrospective studies included patients who started treatment at least three weeks after diagnosis. Studies used different definitions of renal involvement.

Two reviewers independently selected studies and resolved disagreements through discussion with a third reviewer.

Assessment of study quality
The authors did not state that they assessed validity.

Data extraction
Two reviewers independently extracted data and resolved disagreements through discussion with a third reviewer.

Methods of synthesis
The studies were grouped by outcome and study design. Where no significant statistical heterogeneity was found, pooled odds ratios (OR) of corticosteroids versus routine supportive care were calculated with 95% confidence intervals (CI) using fixed-effect models. Otherwise studies were combined in a narrative synthesis and results presented graphically. Methods used to assess statistical heterogeneity were not reported. Funnel plots and Eggers’ tests were used to assess publication bias. The analysis of retrospective studies reporting on the resolution of abdominal pain was repeated after excluding one study that had a delay in the initiation of treatment. Regression analysis was used to examine the dose-response relationship. The number of additional patients required to reverse the effect of corticosteroids on persistent renal function in RCTs was estimated.
Results of the review
Fifteen studies were included (n=1,309). These included three placebo-controlled RCTs (n=379) and 12 retrospective studies (n=930).

Resolution of abdominal pain (two RCTs and three retrospective studies): One RCT reported no significant difference between corticosteroids and placebo in the time to pain resolution. The other RCT found a significant reduction in the corticosteroid group (reduction 1.2 days, p=0.03). Significant heterogeneity was found for the retrospective studies (p=0.01). After excluding one study in which treatment was not started until after 21 days, a significant increase in the proportion of patients with pain resolution within 24 hours of treatment and no significant heterogeneity was found, OR 5.42 (95% CI: 1.60 to 18.29).

Surgical intervention for intussusception (one RCT and two retrospective studies): The RCT and meta-analysis of the two retrospective studies both found a non-significant reduction with corticosteroids, OR 0.16 (95% CI: 0.01 to 3.62) and OR 0.75 (95% CI: 0.13 to 4.46; no significant heterogeneity).

Henoch-Schonlein purpura recurrence (two RCTs and five retrospective studies): Meta-analysis of the two RCTs found a non-significant reduction in Henoch-Schonlein purpura recurrence with corticosteroids, OR 0.32 (95% CI: 0.07 to 1.49; no significant heterogeneity). Significant heterogeneity was found for analysis of the five retrospective studies (p<0.01); no evidence of publication bias was found. One retrospective study reported a significant reduction in Henoch-Schonlein purpura recurrence with corticosteroids. One study reported a significant reduction in Henoch-Schonlein purpura with routine care.

Cumulative renal abnormalities (three RCTs and five retrospective studies): Significant heterogeneity was found for the meta-analysis of the RCTs (p=0.03) and the retrospective studies (p<0.01). No evidence of publication bias was found for either type of study. One RCT and two retrospective studies reported a significant decrease in cumulative renal abnormalities with corticosteroids. One retrospective study reported a significant increase in cumulative renal abnormalities with corticosteroids.

Persistent renal abnormalities (three RCTs and one retrospective study): Meta-analysis of the three RCTs found a significant reduction in the risk of persistent renal disease in corticosteroid groups, OR 0.43 (95% CI: 0.19 to 0.96; no significant heterogeneity and no evidence of publication bias were found). The retrospective study found no significant effect of corticosteroids.

No evidence of a significant corticosteroid dose-response effect was found (p=0.07).

Authors’ conclusions
The early administration of corticosteroids to patients with Henoch-Schonlein purpura appeared to improve several clinically relevant outcomes.

CRD commentary
The review question was stated. Inclusion criteria for study design were broad. Two relevant databases were searched, some attempts were made to locate unpublished studies and no language restrictions were applied; the potential for publication bias was assessed. Appropriate methods were used to minimise reviewer error and bias during the review process. Study validity was not assessed and most included studies were retrospective, and these are subject to various potential biases. Therefore, results from these studies and any synthesis may not be reliable. No information was provided about the study participants and so it was not clear how generalisable results might be. Studies were grouped by study design, appropriate methods were used for the meta-analyses and heterogeneity was assessed. Limited evidence from a small number of studies appeared to support the authors’ conclusions, but the lack of reporting of study quality and differences between studies made it difficult to comment on the reliability of these conclusions.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice.

Research: The authors stated that there was a need for higher quality retrospective studies to evaluate the use of
corticosteroids in Henoch-Schonlein purpura in which the corticosteroid exposure was standardised. There was a need for larger RCTs to assess all clinically relevant outcomes.

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