

Clinical reviews

Our panel of GPs review recent research papers in their specialist areas that may influence the way you practise

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Paediatrics

Do oral steroids improve respiratory outcomes in preschool children with acute wheeze?

Oral prednisolone had little effect on respiratory parameters at 24 hours in young children attending an emergency department with acute wheeze, in a study from New Zealand. However, admission rates, and the need for additional oral prednisolone and intravenous medication were lower in children in the prednisolone group.

A total of 493 children aged 24 to 59 months presenting to an emergency department with acute wheeze associated with respiratory illness were included in the Wheeze and Steroids in Preschoolers (WASP) study. The study was a randomised, double blind, placebo controlled trial carried out in three hospital emergency departments in New Zealand.

All children were given standard treatment which included three sets of 600 µg doses of salbutamol via spacer at 20-minute intervals followed by ongoing bronchodilator therapy. They were then randomised to receive

either oral prednisolone, 2 mg/kg/day, maximum 40 mg, (n = 248) or placebo (n = 247) for three days. Further treatment was unrestricted after that point irrespective of group.

The primary outcome was the effect of prednisolone on respiratory distress at 24 hours, using the validated and standardised Preschool Respiratory Assessment Measure (PRAM) score. The score has five variables: wheezing, air entry, scalene retraction, suprasternal indrawing, and oxygen saturation. The initial PRAM score was recorded before the administration of salbutamol.

PRAM scores were then recorded 24 hours after the first prednisolone or placebo dose either in hospital or by nurses conducting home visits. Two further doses of WASP medication (prednisolone or placebo) were given at 24-hour intervals and a symptom diary was kept for seven days.

Data on 477 children were available for analysis. At 24 hours, 98% of the prednisolone group and 96% of controls were graded as having mild or no disease. No significant difference between the groups was found for change in PRAM score, the difference between means was - 0.39 (95% CI: - 0.84 to 0.06; P = 0.09).

Fewer patients in the prednisolone group received additional oral prednisolone (OR 0.22) or treatment with intravenous medication (OR 0.27). Admission rates were also lower.

Although prednisolone did not seem to make a difference to the patients' respiratory state at 24 hours, children who received prednisolone had less respiratory distress than controls by 4 hours and the treatment may also have reduced the need for further interventions as well as the likelihood of admission.

The study authors conclude: 'Administration of oral prednisolone to preschoolers presenting to hospital with wheeze does not alter respiratory outcomes at 24 hours or beyond, when most children have improved

regardless of initial treatment.

'However, our findings of reduced requirement for hospital admission and escalation of therapy in the treatment group suggest that oral prednisolone may improve short-term respiratory outcomes for preschoolers presenting with wheeze and that subsequent doses of oral prednisolone may provide no additional therapeutic benefit. Further studies are required to investigate this hypothesis further.'

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Wallace A, Sinclair O, Shepherd M et al.
Impact of oral corticosteroids on respiratory outcomes in acute preschool wheeze: a randomised clinical trial.
Arch Dis Child 2021;106:339-44

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