Prescribing salbutamol and oral corticosteroids in a child with wheeze

Dear Editor

I was curious to see the article "Assessing wheeze in pre-school children", BPJ 56 (Nov, 2013) quoting a maximum dose of salbutamol at 800 micrograms per day for the treatment of acute episodes of wheeze in pre-school children. Hopefully this will be ignored by those at the coalface dealing with a sick child – it would be unfortunate if someone withheld salbutamol based on this guidance. Most guidelines go for up to 6 × 100 micrograms for starters, depending on severity, repeated depending on response. So it is common to exceed the 800 micrograms daily in any child with moderate to severe respiratory distress.

The use of short course oral steroids in the treatment of wheezy episodes (atopic, viral, or more often, not sure) seems to be gaining favour. Some comment on the safety of this would be useful - most folks know long courses of steroids are generally undesirable but how about the safety of using approximately 4 – 6 short (3 – 5 days) courses per year.

General Practitioner

The article "Assessing wheeze in pre-school children", BPJ 56 (Nov, 2013), covers the management of wheeze in young children without a diagnosis of asthma. The dose of salbutamol in the section "Treating acute episodes of wheeze" was intended to refer to the at-home management of wheeze in a young child with an acute, self-limiting viral illness. In such a child, the maximum recommended daily dose of salbutamol, as suggested in the medicine data sheets, is 200 micrograms, four times daily, i.e. 800 micrograms per day. The dosing advice for salbutamol was not meant to refer to the management of an emergency situation in a child with

asthma requiring hospitalisation. In retrospect, our use of the term "acute episode of wheeze" in the title of this section was ambiguous, and the intention of the section should have been explicitly stated.

The correspondent is correct that in a severe or life-threatening acute episode of breathlessness in a child with asthma, the dose of salbutamol given can be significantly higher than 800 micrograms. In this scenario the adverse effects of insufficient treatment will almost always outweigh any adverse effects of high-doses of salbutamol. The New Zealand Formulary for Children states the recommended initial acute treatment in a child with a moderate, severe or life-threatening asthma attack is salbutamol, six puffs from a 100 microgram inhaler via a spacer.[4] Each puff should be inhaled separately, and five breaths taken between each puff.[4] This regimen should then be repeated every ten to twenty minutes for one to two hours, with the frequency reduced to hourly if the child's symptoms improve. Oxygen, corticosteroids (usually oral, but in life-threatening situations IV can also be used) and potentially ipratropium are also recommended where available. Referral to hospital should be considered depending on the child's response to salbutamol.

As stated in the article, evidence of the efficacy of oral corticosteroids for the treatment of wheeze in children aged under five years is conflicting.[1, 2] This is likely to be a reflection of the many potential causes of wheeze in pre-school children. There is evidence that children with episodic viral wheeze will not respond to corticosteroids (both inhaled and systemic) as well as children with atopic wheeze but as discussed in the article, it is difficult to make this distinction in pre-school children.[3]

Short courses (i.e. up to five days) of low-dose oral corticosteroids do not appear to be associated with adrenal or immune suppression, bone mineral density loss or reduced height growth.[5, 6] However, there has been only limited investigation of repeated short courses of corticosteroids in children.[5] The few available studies indicate that most adverse biochemical changes, such as reductions in bone-forming proteins, following a single short course of oral steroids in a child return to baseline levels within one month.[5, 6] Adverse effects may be more likely to occur if increasing numbers of courses are given, but it is difficult to say how often is "too often". Giving four to six short courses (as the correspondent queried) of corticosteroid to a child in one year, while not ideal, does not appear to be associated with significant long-term adverse effects.

So what is the role of oral corticosteroids in young children with wheeze? Oral corticosteroids are recommended in a child who requires hospitalisation for wheeze or breathlessness, however, if the child does not require hospitalisation, the decision to prescribe oral corticosteroids should be based on the clinician's judgement. If a child has an acute episode of wheeze that cannot be controlled with salbutamol, oral corticosteroids will produce a more rapid clinical response than an inhaled corticosteroid. If the child is presenting frequently with acute episodes of wheeze requiring oral corticosteroids, however, other management options, such as regular inhaled corticosteroid (ICS) use, should be considered. An additional option, as outlined in the article, is the use of montelukast which is now funded under Special Authority criteria for the prevention and management of exacerbations of wheeze in pre-school children, either alone or in combination with an ICS.

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Are two vaccinators better than one?

Dear Editor

We have recently been informed that it is not best practice to have two vaccinators administering multiple vaccinations at the same time for child immunisations by our local immunisation co-ordinator. Many nurses have been doing this for years and it is what the majority of parents ask for. Would someone be able to advise what is current best practice please - is there any documentation to support this?

Many thanks,

Practice Nurse
Northland

When a child requires two or more immunisations in the same consultation, one method is for two clinicians to simultaneously administer the vaccines. This method reduces the length of time that a child has to be restrained, and is thought to decrease overall pain and the anxiety of anticipating the next injection. The technique should be explained to the parent or caregiver and consent must be gained by both vaccinators. Simultaneous administration of vaccines is regarded as safe, however, there is insufficient evidence to recommend it as "best practice".

Simultaneous administration of vaccines by two vaccinators is not covered within the New Zealand Immunisation Handbook,[1] which sets out the requirements for vaccine administration in primary care in New Zealand. The 2013 Australian Immunisation Handbook and the 2012 United States CDC Vaccine Administration Guidelines do, however, cover simultaneous administration of vaccines.[2, 3] Both state that, at present, there is insufficient evidence to recommend for or against having two vaccine providers administer two vaccines at the same time, rather than one after the other.

Three studies were identified that cover simultaneous administration of vaccines. None of the studies were able to reliably demonstrate a difference in pain response in a child when simultaneous administration and sequential administration were compared.[4–6] One study noted that parents preferred simultaneous administration.[6]

We asked Dr Helen Petousis-Harris, Director of Immunisation Research and Vaccinology, Immunisation Advisory Centre, to comment on the practice of simultaneous administration of vaccines. Dr Petousis-Harris said: "*I have never come across any evidence for the practice. Certainly it is resource intensive which perhaps is why it has not been investigated. It could certainly not be recommended as best practice although there is no evidence against doing it either.*"

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