

## Editorial

# Inhaled steroids for childhood wheezing: a rational picture

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It is now over three decades since the introduction of inhaled steroidal compounds for the management of wheezing in childhood. The very first and the oldest compound used was beclomethasone dipropionate. It has stood the test of time as the gold standard for this type of treatment and is very much in use even today. Subsequently budesonide was introduced and the most recent addition of fluticasone propionate has given much needed versatility to the choice of drugs available.

Several papers in a plethora of internationally recognised medical journals have convincingly demonstrated the clinical efficacy<sup>1</sup> and cost effectiveness<sup>2,3</sup> of these drugs. The dosage schedules and the undesirable side-effects have been adequately documented. All in all, a comprehensive clinical profile of these drugs is available today. In many of the National Guidelines for management of childhood asthma, inhaled steroids are given pride of place and are considered to be the drugs of first line prophylaxis under certain standard indications<sup>4,5</sup>. Current opinion is that it would be better to use these drugs early rather than late but subject of course to the definitive indications listed in the medical literature<sup>6</sup>. As pointed out in the Guidelines on the Management of Asthma in Sri Lanka<sup>7</sup>, the following situations are known to necessitate the use of inhaled steroids in childhood asthma.

1. Chronic persistent asthma.
2. Follow up of severe life threatening asthma.
3. Frequent episodic asthma, more than once in 3 weeks.
4. Repeated hospital admissions, more than once in 3 months.
5. Marked loss of schooling, more than 2 days a month.
6. Severe exercise induced asthma.
7. Troublesome nocturnal asthma that interferes with sleep.
8. Recent increase in frequency of attacks.
9. Recent increase in severity of attacks.
10. Inaccessibility of medical care.

While beclomethasone and budesonide have a clinical silhouette that is similar for all practical purposes, fluticasone seems to offer certain advantages. It has double the potency of the earlier drugs coupled with minimal or negligible bio-availability. This benefit of minimising systemic side-effects even when the efficacy is increased, is a definite therapeutic improvement

especially for those children who need higher doses for controlling their disease. Recent evidence also suggests that fluticasone propionate interferes less with growth when compared to the other two inhaled steroids<sup>8,9</sup>.

There are two options of dosages for starting off a child on inhaled steroids. One is to start with lower doses and gradually increase till control is achieved. The other is to start with a relatively high dose for suppression of the inflammatory process and to tail the dosage down to a maintenance level once control has been established. There is a tendency for a shift to the higher dose regime in many parts of the world as it seems to gain the confidence of the patient and the parents, which ultimately reflects in good compliance in continued use of these drugs. Whatever the regime used, it is extremely important to note that changes in dosage should be undertaken gradually. These should be made, whenever necessary, at about 3 monthly intervals, especially in the maintenance phase of treatment. The use of appropriately selected spacer devices for metered dose inhalers traps the larger particles and reduce deposition in the mouth and throat. Rinsing the mouth and throat with water and discarding it immediately after inhalation from any of the currently available devices also reduces oro-pharyngeal deposition of the drug. These manoeuvres help to minimise local and systemic side-effects.

There has been considerable concern about the safety of inhaled steroids. It is now generally agreed that if the total daily maintenance dose is kept below 400µg of beclomethasone dipropionate or its equivalent in children, the risks are almost negligible<sup>10</sup>. Some authorities have gone as far as extending it to 600µg. One problem however is that nobody is quite sure as to how long treatment has to be continued. There is plenty of anecdotal evidence that it has been possible to withdraw the drugs in some patients without them relapsing back on to the original state. This should be attempted when the child has been stable on maintenance dosage for a considerable period of time and the dosage reductions should be undertaken very gradually. However, some studies have indicated that there may be relapses once the drug is withdrawn<sup>11,12</sup>.

The inhaled steroids are now commercially prepared by many different manufacturers and are available in the form of several inhaler devices. This fact has certain therapeutic implications in that a young child and his or

her parents/guardians would need to be intensely trained on the proper use of these devices. Very often this cannot be satisfactorily achieved by being instructed in a busy out-patient clinic. The person who trains the child initially must also be fully conversant with the device as well. The most rational way of training children in the Sri Lankan setting would be to admit them to hospital for a couple of days for repeated and thorough training by competent personnel. The task does not end there. It would be wise to check the inhaler technique at all subsequent visits as it is well known that optimum technique tends to be disturbed in one way or another with time. Thus corrective measures in technique have to be undertaken regularly.

The parents and the child have to be intensively educated on many different aspects of inhalation therapy<sup>13</sup>. It is well known that abrupt withdrawal of inhaled steroids has the potential to precipitate severe acute attacks. These drugs are not "relievers", they are just "controllers" of the disease and as such are not of much use for acute wheezing. Once started, the course of treatment may be quite prolonged, sometimes up to several years. It is imperative that the users and their families fully understand these facts. It is also essential that the child's progress is closely monitored at regular intervals by the same doctor who originally started the treatment regime.

Inhaled steroids are quite expensive in our country. They are available on a government hospital prescription only at the Lady Ridgeway Hospital for Children in Colombo. Even there, the stocks are limited and the choice of drugs and inhaler devices are restricted. In all other circumstances, the parents have to buy the drugs in the open market. In view of the prolonged course of treatment and the cost involved, the decision to start a child on inhaled steroids should not be taken lightly. There is a tendency among some to use inhaled steroids as a panacea for all respiratory illnesses. A certain amount of inappropriate use of these drugs is evident even in our country and this has prompted the Council of the Sri Lanka College of Paediatricians to write to the Ceylon Medical Journal with words of caution on the improper use of these drugs<sup>14</sup>. It cannot be over emphasised that saner counsel must prevail in making such clinical decisions that have an enduring effect on the child and the family.

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