Journal of the Postgraduate Institute of Medicine 2014;1:E5:1-3
doi: http://dx.doi.org//jpgim.7332

Evidence Update

Evidence update on the use of inhaled corticosteroids in the management of bronchial asthma

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Keywords: inhaled corticosteroids; management of bronchial asthma

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Received: January 2014, Accepted revised version: July 2014, Published: August 2014
Competing Interests: Authors have declared that no competing interests exists

Is intermittent use of inhaled corticosteroids as effective as daily use for management of persistent asthma?

A common recommendation in the management of persistent asthma is to use daily inhaled corticosteroids (ICS). Practices however may vary. Intermittent 'as needed' prescription or patient initiated use of ICS in acute exacerbations is becoming popular.

Chauhan, Chartrand and Ducharme[1] compared the efficacy and safety of daily and intermittent use of ICS in persistent asthma. The review included six randomised controlled trials high in methodological quality, published up to October 2012. Of these trials, two involved pre-school children (aged one to five years), whereas another two were among school children aged 5-18 years. The other trials evaluated were on adult patients. The total number of patients included was 1211. ICS used were either budesonide or beclomethasone. In the treatment group, patients were initiated on intermittent ICS use in exacerbations and continued for short durations. In the control group, daily ICS were prescribed and continued throughout exacerbations. The main efficacy outcome considered was the number of patients experiencing exacerbations that needed treatment with oral steroids. Safety was assessed by the number of patients who developed serious adverse health effects such as growth retardation.

According to the meta-analysis, there was no significant difference in efficacy between the two practices. However, daily ICS showed slightly better effects than intermittent use in some of the treatment outcomes considered. There was a greater improvement in baseline peak expiratory flow rates (PEFR) which were 2.6% higher, asthma control days were more (9% more) and there was a lesser need to use ICS (0.12 puffs less). Both treatments appeared safe, but some growth suppression (0.41cm) was associated with daily inhaled budesonide and beclomethasone. Grade criteria were applied to assess the quality of evidence and all findings were of low to moderate quality. Therefore, reviewers concluded that the strength of the current evidence is not adequate to support replacing daily ICS treatment with intermittent therapy.

Implications for practice

Even though there was no significant difference in the main outcomes assessed, we cannot assume that intermittent and daily ICS treatments have similar efficacy based on the current evidence. Therefore, the potential advantages and disadvantages of each treatment option should be carefully considered in each case, taking into account the unknown long-term effects of intermittent ICS therapy.

Implications for research

There is scope for local and international studies on comparing these two treatment options, using study designs that can generate high quality evidence.

Is a single combination inhaler for both "regular" and "as-needed" treatment better than two separate inhalers in the management of chronic asthma?

For asthma patients who need treatment at step three or higher, the common practice is to prescribe ICS and long acting beta-2 agonists as a single inhaler or as two separate inhalers. Budesonide/formoterol was introduced to the global market for use as maintenance and reliever therapy from a single inhaler (Single Maintenance and Reliever Therapy – SMART). The suggested advantages were the need for a lower dose than other combination therapies and improvement in compliance leading to a reduction of symptoms and exacerbations. The main disadvantage was the increase in side effects associated with the use of inhaled steroids. Kew and colleagues[2] conducted a systematic review to assess the efficacy and safety of using budesonide/formoterol as single-inhaler therapy (SIT) in the management of asthma, compared to combination inhalers (either fluticasone/salmeterol or budesonide/formoterol) with fast acting beta2-agonists for relief of symptoms. Four studies were included with a combined sample size of 9130. All primary studies included in the review were funded by Astra Zeneca and two studies had a high risk for bias with evidence of selective outcome reporting. Compared to combination inhalers, fewer people using SIT had exacerbations requiring hospitalisation or a visit to the emergency room (OR=0.72, 95% CI=0.57 to 0.90). Fewer had exacerbations requiring oral corticosteroids (OR=0.75, 95%CI=0.65 to 0.87). Therefore, if 100 people were treated with SIT compared to treatment with 2 inhalers, one person less will need hospitalisation (95% CI 0 to 2 fewer) and two persons less will need oral steroids (95% CI 1 to 3 fewer). Although all studies were not of good methodological quality, a sensitivity analysis had been conducted and the authors, using GRADE criteria concluded that the quality of evidence was moderate to high for the difference in efficacy outcomes. But the authors did not rule out the possibility that SIT may increase the rates of serious adverse events due to ICS (OR=0.92, 95% CI=0.74 to 1.13).

Implications for practice

Using SIT will reduce the risk of exacerbations in chronic asthma but there may be an increase of adverse effects associated with the use of inhaled corticosteroids.

Implications for research

There is more scope for local and international research in this regard, especially by independent researchers.

References

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