

## Factsheet 11

Updated on 25 June 2020

## Asthma and the role of Inhaled Corticosteroids

### Asthma and Inhaled Corticosteroids (ICS) treatment

- ICS is the cornerstone of asthma treatment throughout the ages.
- The anti-inflammatory activity of ICS is linked to their ability to target cells implicated in asthmatic inflammation (Matera et al, 2019). The role of ICS is to modify pro-inflammatory proteins, control or reverse asthma induced structural changes in the airways such as basement membrane thickening and vascularity of the bronchial wall and thereby reduce hyperresponsiveness. At a cellular level, the presence of ICS also reduces the number of inflammatory cells in the airways (Hossny et al, 2016)
- A clinical management plan for a person that experiences infrequent or intermittent asthma symptoms and does not include ICS should not be accepted practice. The process of symptom assessment, risk assessment and consequential decision making must be clearly entered on the clinical records. Refusal for ICS therapy by a patient or their carer may be attributed to poor education or lack of understanding of asthma as a long-term inflammatory condition; and a failure to explore health beliefs or other factors including socio-economic.

Side effects of inhaled corticosteroids:

- Side effects of inhaled corticosteroids can be local or systemic.
- Local side effects are commonly attributable to poor inhaler technique resulting in high deposition of the drug into the oropharynx (mouth and throat).
- Oral candidiasis (thrush) can be overcome by device assessment and often reduced by routinely swilling with and spitting water out after inhaler use. If necessary, topical antifungal drug can be used when symptoms occur.
- Cough on breathing in ICS can be a problem but can usually be overcome by assessing inhaler technique, and assessing if the patient's inspiratory effort is more suitable for Dry Powder devices or adding in a spacer device with a pMDI

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- Hoarse voice and voice changes are the most frequent local side effects and are the result of the drug impacting on the vocal cords. There is often a correlation between dose and severity of these symptoms - it is the most difficult side effect to overcome.
- Spacer use with pMDI may reduce this side effect. It is possible that people with high inspiratory flows breathe in too deeply and too fast from their devices; this results in greater impact of medication on the vocal chords. Device assessment usage and the use of assessment tools such as whistle placebos or an in-check device can be helpful in identifying this error.

The following definitions can be used to guide doses of ICSs (NICE, 2020). Drug molecules are not equipotent.

<b>For adults aged 17 and over:</b>
less than or equal to 400 micrograms budesonide or equivalent would be considered a low dose
more than 400 micrograms to 800 micrograms budesonide or equivalent would be considered a moderate dose
more than 800 micrograms budesonide or equivalent would be considered a high dose.
<b>For children and young people aged 16 and under:</b>
less than or equal to 200 micrograms budesonide or equivalent would be considered a paediatric low dose
more than 200 micrograms to 400 micrograms budesonide or equivalent would be considered a paediatric moderate dose
more than 400 micrograms budesonide or equivalent would be considered a paediatric high dose.

- Drugs and devices are not licensed uniformly e.g. budesonide/formoterol. The same drug combination and dose in one brand is not licensed in all devices at that same combination and dose.
- Beclometasone dipropionate extra-fine-particles (~1.1 microns) are not the equivalent dose to Beclometasone dipropionate larger particles (~2.9 microns)
- Drugs and devices are not licensed uniformly e.g. budesonide/formoterol. The same drug combination and dose in one brand is not licensed in all devices at that same combination and dose.
- Inhaled corticosteroids should therefore be prescribed by brand since they are NOT Interchangeable

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### References:

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