

Editorial

Stepping down asthma treatment in children

Asthma is one of the most widespread chronic diseases amongst children (1)(2). Current guidelines state that, when possible, children with stable asthma should be stepped down in their treatment to the lowest possible effective dose (3). A patient's minimum effective treatment level should achieve symptom control, minimise adverse drug reactions and reduce cost (4). However, there is limited data on de-prescribing asthma medication amongst children with asthma.

Amongst children leukotriene receptor antagonists (LTRA) are commonly prescribed as a step up medication after inhaled corticosteroids (ICS), as per international guidelines (4, 5). LTRA can be effective, but do carry known adverse drug reactions (6). The majority of children with asthma are managed in primary care (7), an area in which there are numerous barriers to de-prescribing such as limited knowledge particularly in relation to the paediatric population, time pressures and limited guidelines to how to de-prescribe.

The linked randomised control trial (CAN YOU FIND THE REF) examined withdrawal of LTRA in a cohort of children with mild persistent asthma. The study examined changes in spirometry results, impulse oscillation system (IOS) measurements, fractional exhaled nitric oxide (FeNO) and Childhood Asthma Control Test (C-ACT) results. Thirty children with asthma were included – they used montelukast therapy as part of their asthma treatment, and had not had asthma exacerbations, any use of systematic corticosteroids or emergency department visits due to asthma one month prior to the commencement of the study. Children with well controlled asthma did not have any significant change between spirometry, IOS, FeNO and C-ACT results after removal of montelukast treatment in this cohort of patients compared to those who had continued with montelukast treatment.

There have been limited other studies that have looked at the step down of LTRA's in the paediatric population in patients with stable asthma. Most studies examining de-prescribing in paediatric asthma populations examine the step down of ICS (8, 9). One study that has examined the withdrawal of montelukast in participants with mild asthma concluded that there was no change in asthma symptom score 8 weeks after removal of treatment (10). Both the studies that have been discussed here have been in relatively small paediatric cohort populations for a short follow up time period over a few weeks. Clearly further work is needed in this area. Work is required examining the effects of stepping down LTRA's in children with asthma looking at asthma symptom control, asthma exacerbations and changes in airway function over a longer period of time and in a larger cohort of patients. However, it has been shown that de-prescribing should be undertaken where possible and the continuous monitoring of a child's asthmatic symptoms and exacerbations should be continually

reviewed in order to achieve optimum control. In children with mild asthma that is well controlled consideration of reduction in treatment should be considered.

1. Ducharme FM. Leukotriene receptor antagonists as first line or add-on treatment for asthma. *BMJ*. 2011;343:d5314.
2. UK A. Asthma Facts and Stats [Available from: <https://www.asthma.org.uk/about/media/facts-and-statistics/>].
3. Society BT. BTS/SIGN Guideline for the management of asthma 2019 2019 [Available from: <https://brit-thoracic.org.uk/quality-improvement/guidelines/asthma/>].
4. Asthma Gif. GLOBAL STRATEGY FOR ASTHMA MANAGEMENT AND PREVENTION 2020 [Available from: <https://ginasthma.org/wp-content/uploads/2020/04/GINA-2020-full-report-final-wms.pdf>].
5. Turner SW, Richardson K, Burden A, Thomas M, Murray C, Price D. Initial step-up treatment changes in asthmatic children already prescribed inhaled corticosteroids: a historical cohort study. *npj Primary Care Respiratory Medicine*. 2015;25(1):15041.
6. Benard B, Bastien V, Vinet B, Yang R, Krajinovic M, Ducharme FM. Neuropsychiatric adverse drug reactions in children initiated on montelukast in real-life practice. *European Respiratory Journal*. 2017;50(2):1700148.
7. RCPCH. Asthma 2020 [Available from: <https://stateofchildhealth.rcpch.ac.uk/evidence/long-term-conditions/asthma/#ref-2>].
8. Gionfriddo MR, Hagan JB, Hagan CR, Volcheck GW, Castaneda-Guarderas A, Rank MA. Stepping down inhaled corticosteroids from scheduled to as needed in stable asthma: Systematic review and meta-analysis. *Allergy Asthma Proc*. 2015;36(4):262-7.
9. Martinez FD, Chinchilli VM, Morgan WJ, Boehmer SJ, Lemanske RF, Jr., Mauger DT, et al. Use of beclomethasone dipropionate as rescue treatment for children with mild persistent asthma (TREXA): a randomised, double-blind, placebo-controlled trial. *Lancet*. 2011;377(9766):650-7.
10. Kim J-H, Lee S-Y, Kim H-B, Kim B-S, Shim J-Y, Hong T-J, et al. Prolonged effect of montelukast in asthmatic children with exercise-induced bronchoconstriction. *Pediatric Pulmonology*. 2005;39(2):162-6.