Deprescribing montelukast in children with asthma: a systematic review

**Abstract**

**Background:** National and international asthma guidelines recommend adjusting asthma treatment based upon the asthma control of patients, yet no guidance is given regarding the stepping-down of montelukast in children and young people (CYP).

**Aim:** To systematically review current understanding regarding deprescribing montelukast in children and adolescents with established asthma.

**Method:** Searches of Medline, PubMed, EMBASE and CINAHL were undertaken (September 2020) for reports regarding deprescribing montelukast in CYP with established asthma since 1998 (drug licenced). Eligible studies were assessed for risk of bias using appropriate risk assessment tools.

**Results:** The search identified 197 papers after deduplication; 3 randomised control studies and 2 cohort studies met the eligibility criteria. 4 studies observed the impact of montelukast withdrawal for 2 weeks and 1 for 8 weeks. Impact of withdrawal was measured using a combination of lung function tests (e.g. FEV1, FeNO), asthma score systems and exercise challenges. 9 of the 18 impact measures demonstrated a significant change between the end of treatment and the end of the washout period. Of these, 5 demonstrated reduced pulmonary function, 1 a worsening of asthma control, 2 showed an increase in pulmonary function and 1 an increase in asthma control. A mean of 2.8 out of 17 factors outlined by the Core Outcome Set (COS) for clinical trials in childhood asthma were measured per study.

**Conclusion:** Only limited, contradictory and short-term effects of deprescribing montelukast are present in literature. Further studies examining deprescribing montelukast on the COS for clinical trials in childhood asthma are imperative.