Adverse drug reactions of leukotriene receptor antagonists in children with asthma: a systematic review

**Abstract**

**Background:** There is increasing awareness of the adverse drug reactions (ADRs) to leukotriene receptor antagonists (LTRAs) in children and young people (CYP) with asthma, but these have not been systematically reviewed.

**Aim:** To systematically review reported ADRs attributed to LTRAs in children and adolescents with established asthma.

**Method:** Searches of Medline, PubMed, EMBASE and CINAHL were undertaken (September 2020) for suspected ADRs attributed to LTRAs in CYP with established asthma since 1998 (licencing of originator drug in the class). Eligible studies were assessed for risk of bias using appropriate risk assessment tools.

**Results:** The search identified 427 papers after deduplication; 7 case reports, 5 case-controlled or cohort studies, 2 non-comparative studies and 1 randomised control study met the eligibility criteria. 14 studies examined montelukast and 1 pranlukast. After language standardisation, 48 ADRs were found, 20 of which were psychiatric disorders. Applying standardised frequency terms, the ‘very common’ and ‘common’ ADRs reported in the studies were hepatobiliary disorders (18%), psychiatric disorders (7.5%), social circumstance (e.g. declining school performance) (3.6%), nervous system disorders (1.8%) and gastrointestinal disorders (1.3%). Data from the 7 case reports identified 46 severe LTRA-induced ADRs. Overall, the most commonly reported ADRs included anxiety, sleep disorders and mood disorders.

**Conclusion:** LTRAs in CYP generate a significant number of ADRs in children with asthma, and clinicians need to be vigilant for these in clinical practice.