



Guideline topic: Pharmacological management of asthma
Evidence table 4.3d: Leukotriene receptor antagonists in exercise induced asthma

Author	Year	Study type	Quality rating	Population	Outcomes measured	Effect size	Confidence intervals / p values	Comments
Adults								
Edelman et al ¹	2000	Randomised. Double-blind parallel group, comparing montelukast to salmeterol	++	15 – 45 years, FEV1 > 65%, fall in FEV1 of at least 20% with exercise, not taking inhaled steroids or recent exacerbations	1. Max % fall in FEV1 after exercise at end of 8 wk period (1ary) 2. Max % fall in FEV1 at days 1 to 3 and wk 4. 3. Time required after max fall to 5% of baseline 4. Auc 0-60 MIN 1.	Days 1-3. Inhibition 37% vs 36.6% (MON vs SAL); At wks 4 and 8, the effect of MON persisted at same level, but SAL effect was reduced at wks 4 and 8 (approx 30% only), sign less than inhibition	Mean +/-SEM on graphs. P=0.015 at wk4; P=0.002 at wk8.	Groups were comparable (sl less AUC with the sal gp). 93% completion rate. Interestingly, the bronchodilator response measured at first dose and at wks 4 and 8 were: MON: 0.14, 0.09 and 0.07L; SAL; 0.17, 0.14. 0.15L, all values not sign, but the effect of mon seems to be lost with usage! (while the protective effect was lost with SAL). Also,

						by MON		the bronchodilator response is very small (only 5% increase). Large number of patients. Results convincing regarding the inhibitory effects of MON and SAL on EIA.
Leff et al ²	1998	Randomised, double-blinded, placebo-controlled, parallel groups	++	15 – 45 years, using only b-agonists, BHR < 4 mg/ml methacholine, and > 20% fall in FEV1 on 2 consecutive exercise challenge	1. AUC for FEV1 in 60 min (1ary) 2. Maximal fall in FEV1 3. Time for return from max fall to within 5% of baseline FEV1 4. PC20 5. Global assessment of asthma control	% inhibition of 47.4% 31.6% 26.9 0.45 vs 0.14 (MTL vs PLAC) Difficult to assess	95% CI for diff between treatment groups: -818 to -196. P=0.002-12.4 to -2.6; p=0.003-28.4 to -1.0; p=0.04 NS P=0.009	The groups were comparable at baseline, although the MTL group has less EIA but not sign. Large group of patients, powerful study to detect a 50% difference in AUC at a power of 90% or more. The degree of inhibition was sustained throughout the 12 week period (3 measurements done at 4, 8 and 12 wks.

1. Edelman JM, Turpin JA, Bronsky EA, Grossman J, Kemp JP, Ghannam AF, et al. Oral montelukast compared with inhaled salmeterol to prevent exercise-induced bronchoconstriction. A randomized, double-blind trial. Exercise Study Group. Ann Intern Med 2000;132(2):97-104.

2. Leff JA, Busse WW, Pearlman D, Bronsky EA, Kemp J, Hendeles L, et al. Montelukast, a leukotriene-receptor antagonist, for the treatment of mild asthma and exercise-induced bronchoconstriction. N Engl J Med 1998;339(3):147-52.