Montelukast in exercise induced asthma in children

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Only few randomized, controlled trials, were published on the efficacy of montelukast in exercise induced asthma (EIA) in children[1-4] and results showed low to moderate clinical effects compared with placebo.

Aims

The aim of this study were to evaluate if the addition of Montelukast could decrease EIA and to add new data for future quantitative evaluation of studies with outcomes and results presented according to similar criteria.

Table 1

	0	12 h	24 h
baseline maximum fall in FEV_1	22,89		
maximum fall in FEV_1 montelukast		10,08	12,18
maximum fall in FEV_1 placebo		20,09	15,99
		p: 0.027	p: 0.238
baseline maximum fall in FEF_{25-75}	34,04		
maximum fall in FEF_{25-75} montelukast		15,49	20,14
maximum fall in FEF_{25-75} placebo		27,72	20,44
		p: 0.025	p: 0.916

Methods

A double-blind randomized, single-dose, placebo-controlled, crossover study was used. 21 children, age 6-14 years, with reproducible exercise-induced asthma, underwent exercise treadmill challenges at 12 and 24 hours after two doses of montelukast or placebo (5mg). Maximum percent fall in FEV_1 after exercise was used as primary outcome to asses the efficacy of the drug.

Maximum percent fall in FEF_{25-75} and pre-exercises lung function parameters were considered in the analysis of the results. Percentage of protection was calculated as: Ps-Pt/Ps where Ps is the percentage fall in FEV1 at the screening visit, and Pt is the fall after each treatment.

Results

The median percentage fall of FEV_1 at the beginning of the study was 22.89, modifications at 12 h and at 24 h after drug administration were shown in table 1 and in figure 1. Significant and clinically improvements were observed at 12 h after administration of montelukast compared to placebo in the other parameters evaluated: FEF_{25-75} and percentage of protection (figure 2, table 2).

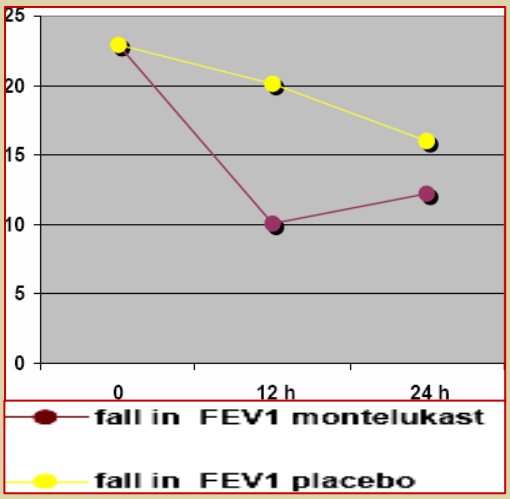

Figure 1

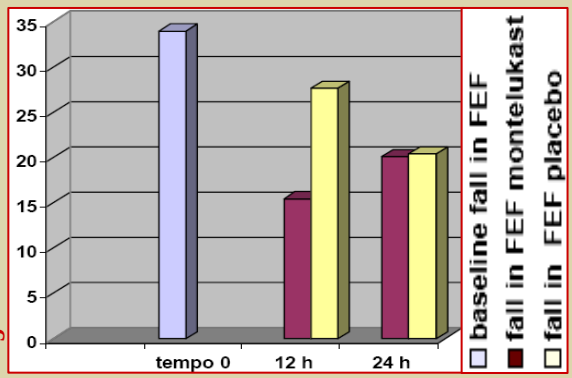

Figure 2

No improvements were obtained in baseline lung function and no differences compared with placebo were observed at 24 h after administration of montelukast (table 1-2).

Table 2

	12 h	24 h
protection for placebo	0,01	0,33
protection for montelukast	0,48	0,49
	p: 0.048	p: 0.248

Conclusions

In conclusion, montelukast improves EIA in children and its maximal efficacy is obtained at 12 h of administration.

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