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COMMENTARY



Once daily combined inhaled steroid and ultra long-acting bronchodilator prescribing in pediatric asthma: a dual Center retrospective cohort study

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ABSTRACT

Objective: A high proportion of children and adolescents who have “difficult” or therapy-resistant asthma, are found to have poor adherence to maintenance therapies. Such individuals are thus difficult asthmatics (for reasons of poor adherence) rather than being young people with true difficult asthma. In our centers, once daily ICS/ULABA (RelvarTM) is considered if there is an increase in reported interval symptoms, asthma attacks requiring hospital attendance or rescue oral prednisolone, or persistently low lung function despite reported regular use of a twice daily ICS/LABA preparation. In the majority of these young people, a clinical history of overt non-adherence or a clinical suspicion of covert non-adherence will be noted.

Methods: The aim of our retrospective cohort study was to assess the clinical effectiveness of RelvarTM in a selected adolescent asthma population.

Results: In a pre-selected group of adolescents with likely poor prior adherence to inhaled therapies, a change to RelvarTM (once daily combined ICS/ULABA) led to improvements in asthma control, as assessed by ED attendances and oral steroid burden.

Conclusions: A prospective study to verify these findings and also explore the effects on quality of life, asthma control, and adherence is warranted.

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KEYWORDS

Pediatrics; treatment; pharmacotherapy

Sir

A high proportion of children and adolescents who are thought to have “difficult” or therapy-resistant asthma, are found to have poor adherence to maintenance therapies when investigated (1,2). Such individuals are thus difficult asthmatics rather than treatment resistant.

Maintenance regimes at steps 2 and 3 of the BTS/SIGN asthma guidelines rely on the use of twice daily inhalation of either inhaled corticosteroid (ICS) or ICS in combination with long-acting bronchodilator (LABA) preparations (3). Non-adherence with such therapies may result in reduced lung function, increased interval symptoms, and more frequent/severe asthma attacks.

Fluticasone furoate/Vilanterol (RelvarTM, GlaxoSmithKline pharmaceuticals, Brentford) is a once daily combined ICS and ultra long acting beta agonist (ULABA) licensed in the UK for the treatment of asthma in children aged twelve years and over. The recommended starting dose of once daily Fluticasone furoate 92 micrograms (22 micrograms of vilanterol)

is approximately equivalent to fluticasone propionate 250 micrograms twice daily (4). However, data on clinical effectiveness of RelvarTM in adolescents are lacking. A recent Cochrane review examining the role for Fluticasone furoate/Vilanterol in asthma found that no conclusions could be made for effectiveness in the pediatric population (5).

We retrospectively reviewed 56 patients (BTS 3 level or higher (3)) prescribed RelvarTM after they had reported increased interval symptoms, asthma attacks requiring hospital attendance or rescue oral prednisolone, or had persistently low lung function despite reported adherence to standard ICS/LABA.

Data collected included spirometry (FEV₁ percentage predicted) (6), fraction of expired nitric oxide (FeNO), number of primary care and hospital prescriptions and number of attendances to the emergency department (ED) before and after commencing RelvarTM.

Following the introduction of once daily RelvarTM there was no significant improvement in either FEV₁ ($p = 0.05$) or FeNO ($p = 0.214$).

However, there was a significant reduction in both rescue prednisolone prescription (hospital {0.0009} and primary care { $p=0.003$ }) and emergency department visits ($p \leq 0.001$).

Whilst acknowledging the limitations of our study given the population size, lack of quality of life data and retrospective data collection we report the largest cohort of adolescents with suspected poor adherence to twice daily ICS/LABA preparations in whom a change to once daily RelvarTM resulted in statistically significant reductions in both emergency department attendances and rescue oral corticosteroid prescribing.

Once daily preparations may be more acceptable to patients and could potentially be delivered within the school setting as a directly observed therapy strategy (DOTS). Given the high affinity for the glucocorticoid receptor, the anti-inflammatory duration of action and long lung retention of fluticasone furoate may suggest weekend missed doses would be clinically less significant (7).

In a pre-selected group of adolescents with likely poor prior adherence to inhaled therapies, a change to RelvarTM significantly improves asthma control, as assessed by ED attendances and oral steroid burden. A prospective study to verify these findings and explore the effects on quality of life and adherence is warranted.

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