

# Fluticasone furoate (Avamys): new intranasal steroid spray

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## KEY POINTS

- Avamys is a metered-dose nasal spray containing 27.5µg fluticasone furoate per dose indicated for the treatment of allergic rhinitis in adults and children 6 years and older; 120-dose unit £6.44
- recommended dose is 2 sprays in each nostril once daily; maintenance 1 spray in each nostril once daily; children 6-11 years: 1 spray in each nostril once daily, increasing to 2 sprays in each nostril once daily if necessary until symptoms controlled
- in clinical trials fluticasone furoate appeared to be as effective as other intranasal steroids in seasonal and perennial allergic rhinitis, with adverse effects typical of this drug group
- the delivery device features a side lever and is designed for ease of use by older people and children
- a crossover study found that adults preferred fluticasone furoate over fluticasone propionate for smell, aftertaste, drip down the throat and nose run off
- is 28 per cent cheaper than fluticasone propionate
- fluticasone furoate is as effective as other intranasal steroids and may be preferred by patients over fluticasone propionate



**Fluticasone furoate (Avamys) is a new intranasal steroid spray for the treatment of allergic rhinitis. Our New product review presents the clinical trial data and describes how this new formulation might be preferred by patients.**

Allergic rhinitis is common and troublesome. The one-year prevalence of self-reported allergic rhinitis in the UK is about 10 per cent in children under 10 and 15 per cent in adolescents and adults;<sup>1,2</sup> 24-30 per cent of people report having symptoms at some time.<sup>3</sup> Reported rates of allergic rhinitis increased two- to threefold in the 1970s and 1980s and subsequently stabilised.<sup>2</sup> However, a recent analysis of the QRESEARCH database of GP consultations in England found that the age-stan-

darised prevalence of diagnosed allergic rhinitis increased by 43 per cent to 66 per 100 000 between 2001 and 2005, with the highest prevalence among 15-19 year olds (10 per cent).<sup>4</sup> Prescribing increased correspondingly, with about one-third of patients receiving antihistamines and one-fifth being prescribed other drugs used to treat allergic diseases.

People with allergic rhinitis report significant impairment of quality of life on days when they are symptomatic.<sup>5</sup> Approximately 70

per cent report nasal symptoms and one-third describe their symptoms as moderate to severe.<sup>6</sup> GPs tend to underestimate the severity of symptoms.<sup>7</sup>

## Treatment

For mild symptoms of allergic rhinitis in adults, treatment guidelines<sup>8</sup> recommend an oral or intranasal antihistamine for nasal symptoms and a topical antihistamine or cromoglicate for eye symptoms; if nasal symptoms persist, an intranasal steroid should

Steroid	Preparations	Recommended dose and minimum licensed age	Cost per 100 or 200 doses*
<i>Beclometasone dipropionate</i>	beclometasone nasal spray Beconase Nasobec	2 sprays into each nostril twice daily; maximum dose 8 sprays daily; when symptoms controlled, dose reduced to 1 spray into each nostril twice daily minimum age 6 years	£2.79 (beclometasone, 200 doses)
<i>Budesonide</i>	budesonide Rhinocort Aqua	2 sprays into each nostril once daily in the morning or 1 spray into each nostril twice daily; when control achieved reduce to 1 spray into each nostril once daily minimum age 12 years	£2.95 (budesonide, 100 doses)
<i>Flunisolide</i>	Syntaris	2 sprays into each nostril twice daily, increased if necessary to 3 times daily then reduced for maintenance; child 5-14 years initially 1 spray into each nostril up to 3 times daily minimum age 5 years	£4.21 (200 doses)
<i>Fluticasone furoate</i>	Avamys	2 sprays in each nostril once daily; when symptom control achieved, 1 spray in each nostril may be effective for maintenance child 6-11 years initially 1 spray in each nostril once daily, if necessary increasing to 2 sprays in each nostril once daily; when symptoms controlled, reduce to 1 spray actuation in each nostril once daily minimum age 6 years	£5.37 (100 doses)
<i>Fluticasone propionate</i>	Flixonase	2 sprays into each nostril once daily, preferably in the morning, increased to twice daily if required; when control achieved reduce to 1 spray into each nostril once daily child 4-11 years, 1 spray into each nostril once daily, preferably in the morning, increased to twice daily if required minimum age 4 years	£7.49 (100 doses)
<i>Mometasone furoate</i>	Nasonex	2 sprays into each nostril once daily, increased if necessary to 4 sprays into each nostril once daily; when control achieved reduce to 1 spray into each nostril once daily child 6-11 years, 1 spray into each nostril once daily minimum age 6 years	£5.59 (100 doses)
<i>Triamcinolone acetonide</i>	Nasacort	2 sprays into each nostril once daily; when control achieved, reduce to 1 spray into each nostril once daily child 6-12 years, 1 spray into each nostril once daily minimum age 6 years	£6.16 (100 doses)
*basic NHS cost, prices from <i>MIMS, Drug Tariff</i> May 2009			

**Table 1.** Currently available intranasal steroid sprays for allergic rhinitis

be substituted. For refractory or severe symptoms, an intranasal steroid plus an antihistamine may be necessary. In children, options for initial treatment of mild intermittent symptoms also include intranasal saline; severe or persistent symptoms should first be treated with an intranasal steroid.<sup>9</sup>

The introduction of fluticasone furoate (Avamys) brings to seven the number of intranasal steroid sprays licensed for the treatment of allergic rhinitis in children and adults (see Table 1). There are differences in the minimum age for which they are licensed; all except beclometasone dipropionate and flunisolide (Syntaris) offer a once-daily dose regimen.

#### *Fluticasone furoate*

The furoate ester of fluticasone is at least as potent as the propionate (the adult daily dose is 55-110µg compared with 100-400µg per day for the older steroid) and it has a longer duration of action.<sup>10</sup> In a crossover study, adults expressed a preference for intranasal fluticasone furoate over the propionate for smell, after-taste, drip down the throat and nose run off; there was no difference between the esters in causing irritation or sneezing.<sup>11</sup>

As with the propionate ester, fluticasone furoate is poorly absorbed from the gastrointestinal tract and rapidly metabolised by the liver. Systemic absorption after intranasal administration is very low and, after administration of 110µg per day for six weeks, there was no evidence of adrenal suppression in children<sup>10</sup> or adults.<sup>12</sup> There is no acute effect on growth rate in adolescents and children<sup>13</sup> but, due to the lack of data, growth should be monitored during long-term use.<sup>14</sup>

Administration via a new device actuated by a side lever and designed for ease of use by older people, chil-

dren and carers.<sup>15</sup> The fluticasone furoate suspension is contained in a nonreplaceable glass bottle; a window in the casing shows how much solution remains. It is available as 120-dose unit, 27.5µg per dose.

#### **Clinical trials**

The key efficacy data for fluticasone furoate in adults and adoles-

cents come from three two-week placebo-controlled trials in seasonal allergic rhinitis<sup>10,16,17</sup> and one in perennial allergic rhinitis.<sup>18</sup> Patients with asthma were excluded.

In seasonal allergic rhinitis, fluticasone furoate 110µg once daily significantly improved total nasal symptom scores, with a trend to

increasing improvement between the first and second weeks; pre-dose nasal symptom scores (confirming a 24-hour duration of action), ocular symptom scores, patient ratings of overall response and health-related quality of life were also significantly improved.<sup>16,19</sup> These symptom improvements were confirmed in a more recent trial<sup>20</sup> and were similar in patients with perennial rhinitis after four weeks' treatment.<sup>18</sup> Onset of action was reported as early as eight hours.<sup>17</sup>

No comparative trials have been published to date, but the effect size reported in these trials is within the range associated with other treatments for allergic rhinitis.<sup>10</sup>

Similarly, fluticasone furoate 55 or 110µg once daily improved nasal symptoms in children aged 6-12 after two weeks<sup>10</sup> and four weeks.<sup>21</sup> However, these changes were less consistent than in adults, with one trial<sup>21</sup> finding only the lower dose significantly superior to placebo for seasonal rhinitis and the other<sup>10</sup> finding only the higher dose superior in treating perennial rhinitis.

#### Adverse effects

In phase III clinical trials the most frequent adverse events reported with fluticasone furoate were headache (8 *vs* 6 per cent with placebo) and epistaxis (6 *vs* 4 per cent); this profile is similar in children and adults.<sup>10</sup>

One 12-month study involving 806 adults reported higher rates of adverse effects (headache: 31 *vs* 34 per cent; nasopharyngitis 26 *vs* 25 per cent) but no difference between placebo and fluticasone furoate with the exception of epistaxis (20 *vs* 8 per cent).<sup>10,22</sup> In this study, 6 per cent of patients taking fluticasone furoate and 3 per cent taking placebo withdrew due to adverse effects.

#### Summary

Fluticasone furoate appears to be as effective as other intranasal steroids at relieving hay fever symptoms, with an onset of action within the first day of treatment. It may be more acceptable to patients than fluticasone propionate. Adverse effects reported to date are typical of intranasal steroids but there are

no published data on long-term safety in children.

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## Pharmabilia — Hospital visiting



At the Suffolk General Hospital in Bury St Edmunds in the 1840s visitors were only allowed to see patients between 2 and 4pm on Wednesdays and between 9 and 10am on Sundays. Although this might seem less than generous by today's standards, at least it must have kept the risk of imported infection to a minimum.

Limiting the spread of disease may or may not have been the reason for restricting visiting hours, but it is certainly true that hospitals were breeding grounds for infection. In the 1830s and 1840s there were repeated outbreaks of erysipelas at the Suffolk General Hospital, which nearly brought its work to a complete standstill. Patients had to be discharged while floors were scrubbed and the walls of the wards whitewashed.

It was not until 1878 that Louis Pasteur presented his case for the germ theory of infection to the French Academy of Medicine, but nevertheless long before then some people had suspected that infections were caused by something more than 'bad air', and that cleanliness was a desirable adjunct to keeping fevers at bay.

In 1814, Reece's *Medical Guide* gave some rules for the prevention of 'contagion'. It observed that there 'should be cleanliness in everything, especially in camps, hospitals, poor-houses and gaols', and, naturally, there should be 'free admission of pure atmospheric air' wherever the sick were accommodated. During the yellow fever epidemic in Philadelphia in 1793, 'out of 2000 persons nursed in tents in the fields, only 17 had died, while

out of an equal number confined to the city 178 had perished'.

It went without saying that dead bodies were to be quickly removed to a room set aside for that purpose. Cadavers should be wrapped in a cloth soaked in pitch and buried as soon as possible, although with some care: it seems that in the Plague of Marseille the French had buried some people alive! That particular epidemic had happened in 1720 but was still remembered nearly 100 years later, no doubt because it had been such a killer. A total of 50 000 of Marseille's population of 90 000 had perished.

After a death due to fever in hospital 'clothes were to be washed and fumigated, and the sick room whitewashed and exposed to sunlight'.

When the patient was alive, visitors were generally discouraged, and the first rule was that 'none should be admitted but those who were impelled by the calls of duty, affection or necessary business'. And nobody should be allowed in 'when fasting or before breakfast'. The afternoon was the best time for visits but, if they had to take place in the morning, 'a glass or two of port or Madeira, or a dose of compound tincture of bark or rhatany root should be drunk beforehand'. Another useful precaution was to hold a handkerchief sprinkled with camphorated acetic acid up to the nose.

It was also thought that it would be helpful if the visitor smoked!

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