

CASE REPORT

Salmeterol-induced vertigo

A. López-Guillen*, L. Marquès*, M.T. López-Llorente+, E. Pastor**, A Figueras++

Salmeterol-induced vertigo. A. López-Guillen, L. Marquès, M.T. López-Llorente, E. Pastor, A. Figueras. ©ERS Journals Ltd 1994.

ABSTRACT: Dizziness, together with hypotension and faintness, are well-known adverse drug reactions of salbutamol that have been related to its cardiovascular effects. However, we could find no published reference to vertigo in patients taking salmeterol, in the absence of cardiovascular alterations.

We present the case of a woman who experienced four independent episodes of vertigo lasting 36 h each, following four inhalations of salmeterol several months apart.

The close temporal relationship between the inhalation of salmeterol and the onset of symptoms, as well as the positive re-exposures, reinforce this alleged association. *Eur Respir J., 1994, 7, 2089–2090*

*Centro de Rehabilitación Respiratoria, and +C.A.P. Lepanto, Sabadell, Spain. **Unitat de Farmàcia, Subdivisió d'Atenció Primària Centre-Lleida, Spain ++Unitat de Farmacologia Clínica, Universitat Autònoma de Barcelona, Barcelona, Spain.

Correspondence: A. Figueras, Unitat de Farmacologia Clínica, Universitat Autònoma de Barcelona, CSU Vall d'Hebron, E-08085 Barcelona, Spain

Keywords: Adrenergic beta-receptor agonists, adverse drug reaction, asthma, salmeterol, vertigo

Received: February 11 1994

Accepted after revision June 12 1994

Salmeterol, a selective β_2 -adrenoceptor agonist, has a bronchodilating action more prolonged than salbutamol [1], and a similar side-effects profile [2]. The estimated incidence of adverse drug reactions (ADRs) attributed to salmeterol is about 21% of the treated patients in large clinical trials [3]; whereas, the incidence of serious ADRs is approximately 1.2% [4]. Although dizziness has been described among its five most common ADRs [4], we could find no reports of vertigo attributed to salmeterol usage after a search through the usual bibliographic databases since 1985.

We describe a case of vertigo following the inhalation of salmeterol that reappeared three times on separate re-exposures.

Case report

A 70 year old woman with bronchiectasia, bronchial asthma, osteoporosis and cholelithiasis, was being treated with inhaled budesonide and sodium nedocromil, oral theophylline, and inhaled salbutamol (on demand) whilst her condition was stabilized (forced expiratory volume in one second (FEV₁) and forced vital capacity (FVC) were 0.49 and 1.16 l respectively, prebronchodilator test, and 0.57 and 1.36 l respectively, postbronchodilator test.). After one of her regular visits to our centre, Serevent® (salmeterol 50 µg *b.i.d.*) was added, and a few minutes after the first dose she complained of vertigo (described as an intense illusion of movement of the environment, not accompanied by nausea, vomiting, hearing loss, or syncope) that lasted 36 h.

After complete recovery, she decided to resume her salmeterol treatment again. Vertigo reappeared with the

same clinical manifestations, intensity and duration. Two months later, another physician prescribed a new preparation containing salmeterol (Beglan®). The patient, who was unaware of the drug contained in this product, inhaled 50 µg, and vertigo reappeared with the same clinical characteristics as on the first two occasions.

As this ADR was not well-known for salmeterol, we suspected propellents contained in the aerosol as possible causal agents of vertigo. Therefore, one month later, the patient gave her informed consent to receive powder for inhalation, containing salmeterol; the episode reappeared again. The patient had no history of previous vertigo, and she has been asymptomatic since the last episode (July 1993), whilst she has continued treatment with the other drugs (including salbutamol).

Discussion

Reports of dizziness or lightheadedness requiring medical attention have been published for salbutamol, bitolterol and fenoterol [5]. However vertigo and dizziness have been considered to occur only very rarely in association with salbutamol [6]. In any case, dizziness is thought to be a cardiovascular-related effect of selective β_2 -agonists due to β_1 -receptor stimulation, and can be explained in the context of hypotension that is accompanied by dizziness and fainting [7]. However, episodes of persistent vertigo (such as those experienced by this patient) might be explained by another mechanism of action.

The case reported here is interesting because the patient was re-exposed three times to salmeterol after the first episode, and the ADR reappeared with the same symptomatology each time. The close temporal

relationship between salmeterol inhalation and the appearance of the ADR, as well as the fact that the patient continued her treatment with the other drugs (including salbutamol) without vertigo, also reinforce this alleged association. Although electronystagmography could not be performed during the episodes of vertigo, neurological and otological explorations revealed no vestibular or auditory dysfunction [8]. A possible interaction between salmeterol and salbutamol in this patient could not be ruled out; however, she inhaled salbutamol occasionally.

Reporting of further cases of vertigo in patients treated with salmeterol will help to reinforce this association and even to define possible risk factors.

References

1. Anonymous. Salmeterol (Serevent®): 'A new era' for treating asthma. *Drug and Therap Bull* 1991; 29: 17.
2. Anonymous. British National Formulary, Nr. 25. London; British Medical Association 1993; pp. 114–115.
3. Anonymous. Glaxo's Serevent® recommended for US approval. *Script* 1993; 1800: 25.
4. Castle W, Fuller R, Hall J, Palmer J. Serevent® nationwide surveillance study: comparison of salmeterol with salbutamol in asthmatic patients who require regular bronchodilator treatment. *Br Med J* 1993; 306: 1034–1037.
5. Anonymous. USP. Drug information for the health care professional. Massachusetts, United States Pharmacopoeial Convention 1993; 1: 596–628.
6. Price AH, Clissold SP. Salbutamol in the 1980s. A re-appraisal of its clinical efficacy. *Drugs* 1989; 38: 77–122.
7. Anonymous. Sympathomimetics. In Reynolds JEF, ed Martindale. The extra pharmacopoeia. London, The Pharmaceutical Press 1993; pp. 1236–1259.
8. Froehling DA, Silverstein MD, Mohr D, Beatty CW. Does this dizzy patient have a serious form of vertigo? *J Am Med Assoc* 1994; 271: 385–388.