

Acceptance of Fenoterol Powder for Inhalation in Children with Bronchial Asthma

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Eighteen children with perennial bronchial asthma, aged 10.3 years, were studied with respect to their attitude to inhalation of fenoterol, a β_2 -agonist, in powder form. Treatment with fenoterol powder was performed for 3 months and questionnaires were answered after 1 and 3 months.

Almost all children showed a positive attitude towards handling capsules and inhaler. Inhaling powder was well accepted and the effect of the powder on asthma symptoms was regarded as good. Although the positive attitude to continue with powder inhalations declined somewhat at the end of the observation period, this type of therapy seemed to be well accepted by children.

Key words: bronchial asthma; childhood; fenoterol; inhalation; powder.

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Recently, β_2 -agonists in powder form administered via powder inhalers have come into use in the treatment of bronchial asthma. They have shown to have the same bronchodilation effect as metered dose aerosols (1, 2, 5) and might be of great value as an alternative to pressurized aerosols in patients who cannot use aerosols effectively, e.g. preschool children. The handling of powder capsules and inhalers is by many children regarded as more troublesome than using conventional aerosols. If powder inhalers are not fully accepted for long term use, they will probably not be used as prescribed. It is therefore of importance to elucidate how this type of therapy is accepted by asthmatic children under clinical conditions.

MATERIAL AND METHODS

Eighteen children (13 boys and 5 girls) with well-controlled perennial bronchial asthma, aged 10.3 years (range 6.5–12.4) were studied. All were familiar with pressurized aerosols and

had responded well to treatment with β_2 -agonists.

Fenoterol, a selective β_2 -receptor stimulator with well-documented bronchodilating properties (1, 3, 4, 6) was used as the active substance. It was administered in gelatin capsules in 200 μ g doses, particle size 99% $\leq$ 7.5 μ m, using glucose as carrier substance, and delivered from a powder inhaler. Scoring cards were used for daily registration of asthmatic symptoms and anti-asthmatic medication taken during the observation period. The study started with a run-in-period of 1 month during which time the patients used fenoterol aerosols in 200 μ g doses when needed. This was followed by 3 months on fenoterol powder administered by powder inhaler in 200 μ g doses up to 3–4 times a day. No aerosols were used during this period.

After 1 and 3 months on fenoterol powder the patients answered a questionnaire concerning their attitude to fenoterol powder for inhalation therapy.

Table 1

Attitude towards the effect of powder inhalation and prolonged powder inhaler use

After	Effect of fenoterol powder on asthma symptoms			Attitude towards continuing with powder inhaler		
	Good	Some	No	Positive	No opinion	Negative
1 Month	14	3	1	13	4	1
3 Months*	14	3	—	9	5	3

n = 18; **n* = 17.

RESULTS

After 1 month on fenoterol powder almost all children had a positive attitude towards loading and emptying the inhaler and to the inhalation of the powder. Only one patient experienced a local irritating effect in the throat and one did not like the taste of the powder. Thirteen children stated that they would like to continue to use powder for inhalation (Table 1). Comparing the powder inhaler to the pressurized aerosol no preference for either way of administration was found. The powder inhaler takes a longer time to use than the dose aerosol. This was not of importance for 13 children but three regarded this as a clear disadvantage. Thirteen children were of the opinion that it was easier to keep the consumption of medication under control. Eleven regarded this as a clear advantage and only two as of no importance at all.

After 3 months on fenoterol powder, one patient had dropped out of the study but the remaining 17 patients still had a positive attitude towards handling the powder inhaler. Fourteen still considered the powder to have good effect on their asthma symptoms but now only nine were positive towards continuing with powder inhalations (Table 1), five were doubtful, three were negative. At this point, six patients preferred to use aerosol, seven the powder inhaler and four did not have any preference.

The powder was not reported to give rise to cough or irritation in the throat and only one child did not like the taste of the powder. Some patients complained about a tendency for the powder to aggregate in the capsules because of

absorption of humidity. One patient dropped out of the study for this reason.

DISCUSSION

After 1 month on powder treatment most children were positive towards continuing with powder inhalations. After 3 months on treatment the same patients were somewhat hesitant about continuing with powder treatment even if they still evaluated the effect on asthma symptoms as sufficient. Fifty per cent now preferred to use aerosol, most of them because they regarded the aerosol to have a more noticeable and prompt effect than the powder inhaler. In spite of this the powder was used to the same extent during the whole observation period as was the aerosol during the run-in period. This speaks in favour of the opinion that powder inhalation is well accepted by children and can be used with confidence.

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