

Short Report

Asthma medication in children – 1991

R. J. KAARSGAREN*, R. F. ZIJLSTRA* AND P. HELMS†‡

**School of Medicine, University of Utrecht, Netherlands, and †Hospitals for Sick Children, Great Ormond Street and Hackney Road, London, U.K.*

Introduction

Asthma is the most common chronic disease in childhood, affecting over 10% of children below 15 years of age in the U.K. (1,2). The number of hospital admissions has been rising steadily (3), and the prevalence appears to be increasing (4,5). There is evidence that many wheezy children are not being adequately treated and that prescribed therapy may not be used appropriately because of lack of understanding by patients or their parents (1,6–12). The unpredictability of the course of the disease and difficulties in assessing patient compliance cause further problems in maintaining good control of the disease (13–15). In contrast with the situation in the early eighties, when there seemed to be no common specialist approach (16), recent consensus statements on the management of asthma in adults (17) and children (18,19) now provide clear therapeutic guidelines.

In view of these recent developments in the publishing of asthma and its ideal therapy, we embarked upon a study of current treatment in children with unequivocal asthma, in three asthma clinics, which had been previously surveyed in 1979 and 1983. We were particularly interested in asthma treatment from the patients' and parents' perspectives, use of other therapy, and understanding of treatment.

Patients and Methods

Paediatric asthma clinics were surveyed at three London hospitals (Hammersmith, Kingston and The Hospitals for Sick Children). All were directed by consultant paediatricians with an interest in respiratory disease and no changes in senior medical staff

had occurred since the first study in 1979. Only two criteria for inclusion were made, namely attendance on at least one previous occasion and the ability to speak English without an interpreter. Before giving permission to take part in the interview, the purpose of the survey was explained to parents and children and it was made clear that their replies would only be relayed to their medical attendants in an indirect form so as to ensure confidentiality. To promote an atmosphere where parents and children could speak freely and expand upon responses, one interviewer wrote down the replies, while the other conducted the interview without interruption.

We used the same questionnaire as in 1979 and 1983 which included demographic details, questions on treatment and on the home and school situation. Finally the various medications prescribed for each individual were discussed in detail. Knowledge of drug action was scored on a 0–2 scale corresponding to none, partial or complete, using a selection of key concepts for each drug group. For example, the key concepts for β -agonists included bronchodilator, absence of a prophylactic effect except before exercise and immediate relief. For corticosteroids the key concepts were anti-inflammatory activity, prophylactic role, absence of immediate relief and the importance of regular use.

Patterns of treatment, age and sex distribution were compared between clinics and between surveys using chi squared analysis and, if no significant differences ($P < 0.05$) were demonstrated, data were aggregated for further analysis.

Results

Age and sex distribution were not significantly different from the two earlier surveys. Distribution of age and sex were also not significantly different between clinics. Age ranged between 1.2 and 15.1 yr with a mean age of approximately 7 yr, male: female

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‡To whom all correspondence should be addressed at: Department of Child Health, University of Aberdeen, Medical School, Foresterhill, Aberdeen AB9 2ZD, U.K.

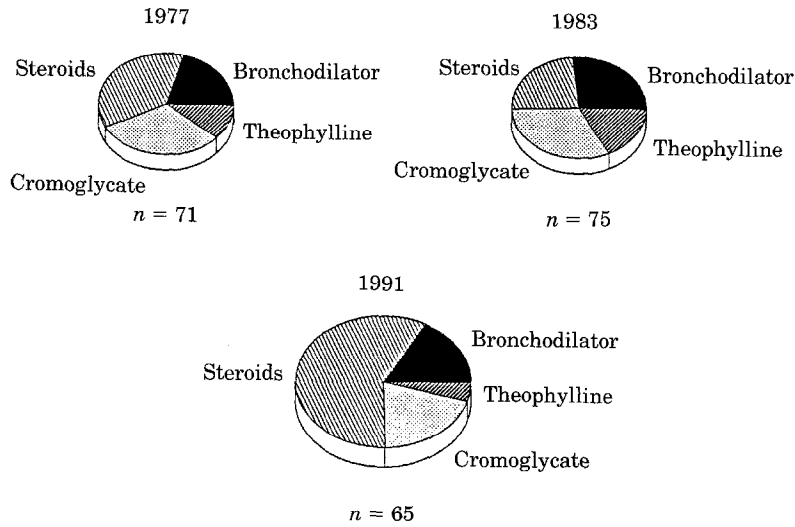


Fig. 1 Major treatment patterns found in 1977, 1983 and 1991. All children using corticosteroids, theophylline and cromoglycate had access to β -adrenergic agonists, (except two children in the 1991 survey). In 1991, six using β -adrenergic agonists, theophylline and corticosteroids were included in the steroid group. In 1977 and 1983, five and 10 patients respectively using cromoglycate and theophylline were included in the cromoglycate group.

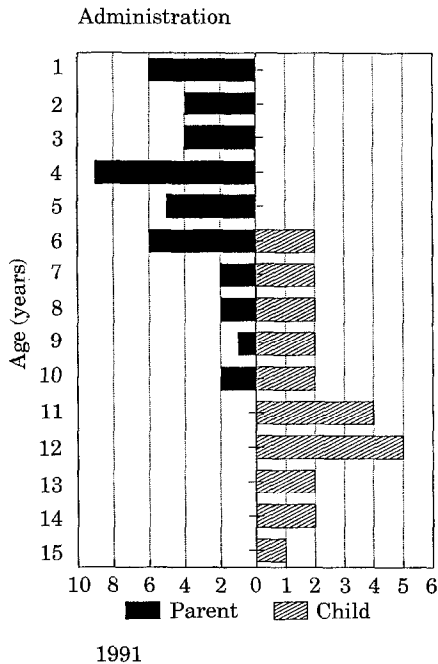


Fig. 2 Distribution of parental/child responsibility for treatment by child age. In all three surveys most children over 10 years were responsible for their own treatment.

ratio was 1.6: 1 and age of onset of symptoms ranged from 0.1 to 11.0 yr with a mean of 2 yr and 8 months.

The pattern of drug use had changed considerably over the 14 yr period (Fig. 1) with 82% taking at least two drugs in 1991, the commonest pattern (59%) being a β -agonist with a corticosteroid. Corticosteroid use rose from 24% in the 1983 survey to 59% in the present survey. Nearly all steroids (95%) were administered by inhalation only, with only 5% being administered orally. The use of theophylline and cromoglycate fell from 50% in 1983 to 33%. As in 1983 more than 50% (31% in 1977) reported occasional or regular use of general practitioner prescribed antibiotics during exacerbations of asthma. When asked about other therapy, two parents mentioned menthol inhalation as a helpful treatment and three children were taking regular Ipratropium Bromide (Atrovent) and Terfenadine (Triludan). Below the age of 5 no child had free access to drugs. Above the age of 10 virtually all did (Fig. 2). One third of the children had a peak flow meter at home and of those taking their medicines at school 17% admitted to embarrassment. Only one-third regularly used prophylactic therapy prior to games.

Most parents were happy with their level of knowledge about the treatment prescribed (55 of 65) and most were satisfied with the clinic doctor's advice for management of mild episodes (49 of 65) and severe exacerbations (47 of 65). Twelve parents (18%) spontaneously mentioned that they were unhappy with their general practitioners despite the fact that no leading question was posed on this subject.

Most children (85%) found no problem in taking the prescribed medication and those who did were mostly in the younger age-groups. This dislike was frequently due to the mask and spacer device used for inhaled β agonist and/or steroids.

We found that 11 (17%) of the children or their parents had no idea of the mode of action of β -agonists (in 1983, 35%). One-third could not say anything about the mode of action of corticosteroids, one third knew something and the remaining third had a good working knowledge of the benefits and possible side effects.

One-fifth (12 of 63) had noticed side-effects (tremor, hyperactivity) when using β -adrenergic agonists and two of the 38 using corticosteroids complained of hoarseness and three of the 13 using cromoglycate complained of sore throats.

Discussion

The two previous surveys showed broadly similar patterns of treatment between 1977 and 1983 reflecting the common specialist approach in the clinics surveyed. However, although the senior medical staff in all clinics had not changed since 1977 the 1991 survey showed a dramatic increase in the use of corticosteroids which had become the most widely used prophylactic agent. This may be explained by evidence for chronic inflammatory changes in the submucosa of the airways (20) consensus statements on asthma treatment(17-19) the marketing strategies of those companies producing inhaled steroids and improved delivery systems more suitable for children.

Despite the change in prophylactic therapy from 1977-1991 a similar pattern of drug administration was revealed. Most children under 10 years had their medication administered by their parents, while after that age the majority looked after their own treatment. If this finding were to be found in most asthma clinics it should have an important impact on the conduct of 'asthma' education in such clinics. The amount of uncertainty about therapy in children and parents was still as high as in the 1983 survey with one-sixth and one-third of the patients respectively having inadequate knowledge about mode of action of β -adrenergic agonists and inhaled steroids.

A surprising number of patients spontaneously mentioned dissatisfaction with management of asthma by their general practitioner and although we did not investigate the reasons for this it was likely that this was related to initial misdiagnosis (10). The use of antibiotics as part of asthma treatment was as widespread as it was in 1983 suggesting that in the areas around the surveyed clinics there remained a

common and misplaced emphasis on 'wheezy bronchitis' and bacterial infection (6,21,22). Surveys of prescribing practice and patient use and understanding of therapy are useful in identifying areas of concern and changing attitudes to asthma.

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