MANAGEMENT OF INFANTILE ASTHMA

A. Grimfeld, J. Just.

Policlinic of Pediatric Pulmonology, Children's Asthma Center,
Armand Trousseau Children's Hospital, Paris, France

Asthma becomes more frequent and the patients are younger and younger. Several years ago infantile asthma was controversial as clinical entity. Actually this entity is clearly specified.

From a clinical point of view infantile asthma has several characteristics :

- 1) attacks are often severe,
- 2) bronchial obstruction often persists between attacks, with persistent wheezing,
- 3) and among the factors of risk, allergy to be a criterion of more severe prognosis.

In infancy, attacks of asthma generally appears after one or several viral bronchiolitis which occurred during winter time. At this age lung function tests are not easy to perform and bronchial hyperreactivity is difficult to prove. At least there are actually two reasons to explain that : 1) at this age the patients cannot collaborate on testing, and 2) there are not yet standards of bronchial reactivity between the birth and three years of age. So, particular technics must be used such as 1) the oesophageal balloon or the body plethysmograph for measuring lung resistance and compliance, and 2) the jacket for the measurement of passive expiratory flows and bronchial reactivity. For making the results interpretable these tests must be performed during a symptom-free period without wheezing.

In this field it is not correct to say that these patients are often "happy wheezers" babies. They are not so happy even if they go on with playing and smiling. They have often some eating difficulties and sleeping troubles.

Before to assure the parents of the diagnosis of their infantile asthma, the physician must eliminate other diseases which may cause wheezing in the chest : cystic fibrosis, bronchial foreign body, bronchial dyskinesia, swallowing troubles, or ciliary dismotility. The diagnosis step is conducted according to the symptoms and disease history.

After the diagnosis of asthma being stated, risk factors are investigated. Allergy is not easy to prove in infants but anyway it must be looked for. It is generally established from a group of data, each of which may be not contributive at the initial period of the disease : family history of allergy, atopic dermatitis, positive skin tests, raise in total serum IgE and/or presence of specific IgE against air and/or food allergens. Besides allergy, other risk factors may be responsible for the onset and/or the perpetuation of disease : gastroesophageal reflux, partial Ig deficiency (especially in IgG2-IgG4 subclasses) and/or alpha-1-antitrypsin deficiency. The treatment of attacks is closely dependent on their severity. In numerous cases, either oral or inhaled (nebulised) beta-2-agonists are effective enough, in association with physiotherapy and (often) antibiotics. But often either oral or parenteral corticosteroids are necessary during 4 to 8 days. In the most severe forms, oxygen therapy and intravenous drug injections are

needed and the patients must be hospitalized. The maintenance treatment is carried on according to length and severity of the disease, and to the existent risk factors. The control of environment is always of primary importance at this age (when possible): disposition of a dust-free bedroom, suppression of passive smoking, eviction of pet animals, withdrawal from a day nursery. The second step, in an additional procedure, is the setting of a (by us) so-called “adaptation treatment” comprising an oral antihistamin drug (such as ketotifen) and/or nebulised cromoglycate. The third step, if the previous steps are not efficient enough, may comprise the using of long-acting theophyllin even if the management of such a treatment is not easy. At the beginning, it needs several measurements of theophyllin serum level in order to adapt, for each patient, the dosage of the drug to its non toxic effective serum steady-state. Immunotherapy is not usually prescribed in infants. Finally in the most severe cases, long-term corticosteroid treatment may be necessary. In this series of drugs, the marketing of inhaled forms delivered by convenient devices has dramatically improved the tolerance with the same efficacy in infants.

From a general point of view, new forms of drugs to be inhaled (solutions, dry powders) and new devices (spacers, dry powders inhalers) have considerably improved the treatment conditions in infantile asthma. However in numerous cases the conditions remain difficult to bear especially in low economic populations.

Actually some trends stand out for promoting a primary prevention of asthma in order to prevent the disease from breaking out. This treatment might be based on control of indoor air pollution, control of food quality and prescription of drugs such as ketotifen and/or inhaled corticosteroids early in the life.