The 12 cases with asbestos body counts of over 10 were all males, and a definite history of industrial asbestos exposure was obtained in 10 cases. The exceptions were an electrician (count 95) and a painter and decorator (count 98). On inquiry by the pathology department it was found that asbestos exposure was a distinct possibility in these cases also.

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Comparison of Preseasonal and Coseasonal Allpyral with Depo-Medrone in Summer Hay-fever

M. A. GANDERTON,* M.B., B.S., D.C.H. ; JONATHAN BROSTOFF,†§ M.A., B.M., M.R.C.P. ; A. W. FRANKLAND,‡ M.A., D.M.

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Summary: Three hundred patients with grass pollen hay-fever, with or without pollen asthma, were given one of three forms of treatment: preseasonal or coseasonal alum-precipitated pyridine extracted grass pollen (Allpyral) or methylprednisolone acetate in slow-release form (Depo-Medrone). Significant improvement was obtained with preseasonal Allpyral and with Depo-Medrone, but the degree of improvement obtained with coseasonal Allpyral fell within the limits of placebo response.

Nevertheless, it is considered that the definite suppression of the pituitary-adrenal function which results from the use of a long-term steroid is not justified in a benign condition such as hay-fever.

Introduction

Since the treatment of hay-fever and pollen asthma with multiple injections of aqueous pollen extracts was first described (Noon, 1911 ; Freeman, 1911), other methods which require fewer injections have constantly been sought. Depot injections of allergen in mineral oil emulsion have been used (Loveless, 1947 ; Brown, 1959), but these can cause general as well as severe local reactions (Pearson, 1965), and many are now cautious about using this form of therapy.

An alum-pyridine-precipitated pollen extract was described by Fuchs and Strauss (1959). This seemed as effective as aqueous pollen extracts in the treatment of hay-fever (Harris, 1962 ; Frankland and Noelpp, 1966) and has the advantage of requiring fewer injections. Preseasonal hyposensitization is usually recommended, but if patients require treatment during the season and their symptoms are not controlled by antihistamines and antispasmodics, coseasonal hyposensitization or corticosteroids can be prescribed. Hay-fever symptoms have been treated by oral steroids (Evans, 1966) and by injections of methylprednisolone (Brown *et al.*, 1960 ; Arbeiter and Knapp, 1961), but no controlled trials of this form of therapy in summer hay-fever have been performed. It was therefore decided to compare the efficacy of alum-precipitated pyridine extracts of grass pollen, used preseasonally and coseasonally, with depot injections of methylprednisolone acetate given during the season.

* Clinical Assistant.
† Registrar.
‡ Director.
Allergy Department the Wright-Fleming Institute of Microbiology, St. Mary's Hospital Medical School, London W.2.
§ Present address: Institute of Clinical Research, Middlesex Hospital Medical School, London W.1.

Scheme of Trial

The basis of this trial is similar to others previously described (Frankland, 1965 ; Pearson, 1965) ; only patients with hay-fever and asthma whose symptoms were confined to the grass pollen season were included. Each patient kept a daily record of symptoms of any hay-fever or asthma, as well as a record of any untoward symptoms that occurred during treatment. At the end of the season the patient was reassessed, bringing with him the daily record chart. The symptoms of hay-fever and pollen asthma were assessed separately by the patient because any improvement noted in the asthma symptoms did not necessarily run parallel to hay-fever relief. At the end of the season patients were asked to state whether, as a result of treatment, they considered their symptoms were the same, better, or worse compared with previous years. Three groups, consisting of 102, 98, and 100 patients respectively, were treated with either preseasonal or coseasonal alum-precipitated pyridine extracted grass pollen (Allpyral) or injections of 6α-methylprednisolone-21-acetate in slow-release form (Depo-Medrone). The three groups were comparable with respect to age, sex, age at onset of symptoms, and the presence of asthma.

Details of treatment are given as follows:

(1) *Preseasonal Allpyral.*—Subcutaneous injections ranging from 10 protein nitrogen units (p.n.u.) to 2,400 p.n.u. given at weekly intervals for nine weeks during March and April.

(2) *Coseasonal Allpyral.*—Seven injections ranging from 5 to 200 p.n.u. given at intervals of three to seven days beginning at the onset of symptoms.

(3) *Depo-Medrone.*—One injection of 80 mg. of methylprednisolone acetate was given at the onset of symptoms in June ; a second injection was given not less than 10 days later, just before the expected peak of the pollen cloud.

The pharmacological effect of 80 mg. of Depo-Medrone was expected to last for at least 10 days (Bain *et al.*, 1967). Clinically it was not possible to show any direct relationship between the giving of the injection and the duration of improvement of symptoms.

Results

The percentages of patients reporting improvement of their hay-fever and pollen asthma, if present, are shown in Table I. For both hay-fever and pollen asthma preseasonal Allpyral is a more effective treatment than coseasonal (P=0·001) while the differences between preseasonal Allpyral and Depo-Medrone are not statistically significant (P=0·2).

TABLE I.—*Percentage of Patients Reporting Improvement of Their Hay-fever and Pollen Asthma with Treatment*

Treatment	Symptoms	
	Hay-Fever	Pollen Asthma
Preseasonal Allpyral	78·4%	71·0%
Coseasonal Allpyral	61·2%	53·8%
Depo-Medrone	70·0%	71·4%

Reactions to Injections.—Each form of treatment gave rise to reactions (Table II). With Allpyral the majority of reactions occurred about three hours after injection. These were probably immediate (type 1) reactions (Gell and Coombs, 1963) whose onset was delayed by slow absorption of the allergen. Reactions to Depo-Medrone were minimal.

TABLE II.—*Reactions from Injections*

	Preseasonal Allpyral	Coseasonal Allpyral	Depo-Medrone
Total No. of patients	102	98	100
Any reaction	35	25	3
Following more than one injection	20	10	3
Local	22	10	0
Asthma	7	4	0
Urticaria	5	4	0
Rhinitis	7	8	2
Dizziness, disorientation ..	2	2	0
Vomiting or influenza-like symptoms	1	2	2

Discussion

Any form of treatment for summer hay-fever must be effective, safe, and acceptable to both patient and doctor. As in previous trials, preseasonal Allpyral fulfilled these conditions and afforded relief for both asthma and hay-fever in more than 70% of the patients so treated. No patient given preseasonal Allpyral developed asthma for the first time during treatment. Four patients treated with coseasonal Allpyral, however, developed asthma for the first time during their course of treatment and the degree of improvement of the asthma (53·8%) fell within the limits of placebo response (Frankland and Augustin, 1954).

Although two patients developed asthma for the first time despite steroid treatment, the improvement obtained in hay-fever with Depo-Medrone (70%) was similar to that obtained with preseasonal Allpyral. Depo-Medrone therefore appeared moderately effective, reactions were minimal, there were no obvious side-effects, and as symptomatic treatment it was acceptable to the patients. Against this one must carefully consider the risks of undertaking steroid therapy unnecessarily, since it is recognized that administration of corticosteroids can cause suppression of pituitary-adrenal function.

In general the degree of suppression is related to the amount of steroid given and the time for which treatment is continued (Treadwell *et al.*, 1963). Depo-Medrone, being a long-acting steroid and in depot form, requires special consideration. We have therefore studied a series of cases treated with two injections of 80 mg. of Depo-Medrone at an interval of 10 to 14 days (Ganderton and James, 1969). Plasma cortisol levels were suppressed, especially after the second injection. Adrenal function as measured by the cortisol response to 250 μg. of Synacthen (tetracosactrin) intramuscularly (Wood *et al.*, 1965) often remained suppressed until a month after the second injection. In the same study the response of the pituitary-adrenal axis to the stimulus of hypoglycaemia (Landon *et al.*, 1963) was also investigated. Some minor degree of suppression was still apparent for varying periods of time after the second injection of Depo-Medrone. It is doubtful whether the risk of using a long-acting corticosteroid is justifiable in treating a benign temporary condition such as hay-fever with or without pollen asthma.

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