

THE USE OF GAMMA GLOBULIN IN THE TREATMENT OF INTRINSIC ASTHMA

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PURPOSE

THE current group study was initiated in an effort to determine whether or not gamma globulin therapy had a place in the management of intrinsic asthma. Recent studies by Favour¹ and by Abernathy and associates² would suggest that it has no value. Favour's study involved a small group of patients, primarily adults; Abernathy's group, although composed of a larger series of children, was similarly small. Under the circumstances, we felt that further study on a broader scale was indicated.

METHOD

In order to collect a relatively large series of any significance, uniformity of case material as well as methodology was essential. A group of physicians cooperated, and only those reports meeting certain criteria were used in the study.

All patients were children under the age of 12 who had asthma definitely associated with infection. In each case routine allergy care, as well as drug therapy and antibiotics, was used and stabilized. Then, when asthma precipitated by infection ensued, the gamma globulin was given in doses of 0.5 c.c. per kilogram of body weight. The dose was repeated every two weeks for three injections before a decision concerning lack of effect on the course of asthma was reached. If benefit ensued, the reporting physician estimated the benefit obtained. Blood gamma globulin determinations were made electrophoretically or chemically prior to and just after the end of gamma globulin therapy.

RESULTS

A total of eighty-four satisfactory cases were accumulated, and as shown in Table IV, about one-half of the patients obtained some benefit. A breakdown of the group according to age is of interest. Patients under the age of 1 year

Gamma globulin for this study was supplied by the American Red Cross.

The following physicians collaborated in the case studies: Drs. Earl B. Brown, New York, New York, S. J. Levin, Detroit, Michigan, and Roland Scott, Washington, D. C.

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TABLE I. UNDER 1 YEAR OF AGE

Post-gamma globulin level higher—3 patients had 50-75% benefit	
Pre-gamma globulin low	
Post-gamma globulin level same—1 patient had less than 50% benefit	
Pre-gamma globulin normal*	1 patient had 50-75% benefit
	1 patient had less than 50% benefit

*A level of 0.6 Gm. per cent or better was considered normal.

(Table I), a group in which a lower-than-normal blood gamma globulin level is not too unusual, showed, in four out of six cases, 50 per cent or more amelioration of asthma. Three of the four patients obtaining benefit had low initial gamma globulin levels, and all three sustained a definite rise in the blood level following therapy. One with an initially low level and no post-therapy change

TABLE II. AGES 2 THROUGH 5 YEARS

	RELIEF OF ASTHMA			
	0	LESS THAN 50%	50-75%	MORE THAN 75%
Pre-gamma globulin low				
Post- β gamma globulin up		2	2	*
Post- β gamma globulin same		1	1	
Pre-gamma globulin normal	5	5	4	3
Level not done	4	2	2	1

showed no improvement. In the group from 2 to 5 years of age (Table II) the results showed nineteen children with no or slight (less than 50 per cent) benefit and thirteen with moderate to marked benefit. Table II does not bear out the benefit to children with low gamma globulin levels suggested by Table I. Of

TABLE III. AGES 6 THROUGH 12 YEARS (NONE WITH LOW GAMMA GLOBULIN)

	BENEFIT TO ASTHMA			
	0	LESS THAN 50%	50-75%	MORE THAN 75%
Gamma globulin normal	9	7	11	10
Gamma globulin not done		4	3	2

the older children, aged 6 through 12 years, none were reported to have low gamma globulin levels. Here twenty children had little or no benefit, compared to twenty-six who had good results. The final total of all groups reveals that 51 per cent had some good results. Of this total, only 19 per cent had more than 75 per cent benefit. The bulk of cases (49 per cent) had little or no change in the asthmatic pattern.

TABLE IV. TOTALS OF ALL GROUPS

BENEFIT				TOTAL
0	LESS THAN 50%	50-75%	75% OR MORE	
18 (22%)	23 (27%)	27 (32%)	16 (19%)	84

It would appear that further study on the use of gamma globulin in patients with low blood levels, particularly those under the age of 1 year, in whom this situation is prone to occur, should be made. The present group in this age area is too small to be conclusive. Otherwise, gamma globulin does not appear to affect the course of infectious asthma materially, although some clinical improvement did occur in most cases.

REFERENCES

1. Favour, C. B.: Dynamics of Gamma Globulin Administration in Chronic Bronchial Asthma, *Bibl. Haemat.* 7: 390-396, 1958.
2. Abernathy, R. S., Strem, E. L., and Good, R. A.: Chronic Asthma in Childhood, Double Blind Controlled Study of Treatment With Gamma Globulin, *Pediatrics* 21: 980-993, 1958.