

USE OF SOYBEAN MILK AS AN AID IN PROPHYLAXIS OF ALLERGIC DISEASE IN CHILDREN

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THE purpose of this study was to determine whether the incidence of atopic dermatitis (eczema) and other major allergies, as well as their allergic sequelae in potentially allergic infants might be influenced by completely withholding cow's milk from their diets from birth until the age of six to nine months. By a potentially allergic infant is meant an infant who has one or more allergic parents or siblings. A previous publication¹ has discussed the underlying reasoning for, and demonstrated the feasibility of, raising infants in this manner.

Ninety-one infants comprised the experimental group. They were all either offsprings or siblings of one or more individuals with one or more major allergies, that is, asthma, pollinosis (rose or hay fever), atopic dermatitis (eczema), or perennial allergic rhinitis (P.A.R.). Cow's milk was deliberately withheld from each infant from birth. Each was fed a commercially available soybean formula.* Table I indicates the age at which these infants were changed from soybean milk to cow's milk. Table II shows the length of the follow-up of this group which was continued until the time of this writing.

The histories of sixty-five siblings of those in the experimental group were also reviewed. In addition, a second control group was chosen as follows: From reviewing the histories of 4,710 allergic individuals in 1,215 families, 175 children with approximately the same allergic family history were selected. Those in the sibling group, as well as those in the nonrelated control group, were considered as suffering from a major allergy *only* if their allergic symptoms occurred *by or before* the age of onset of their counterparts in the experimental group. For each group the following data were sought: (1) the total incidence of major allergic diseases, (2) the incidence of atopic dermatitis, (3) the incidence of other allergies to cow's milk (colic, diarrhea, etc.), and (4) the allergic sequelae of atopic dermatitis and other allergies due to cow's milk.

Table III summarizes the comparative data obtained from the three groups of infants studied. Major allergy occurred in 14 per cent of the experimental group, in 64 per cent of the sibling controls, and in 52 per cent of the unrelated control group. The chances that these findings are due merely to coincidence is less than one in one hundred (Chi square equals sixteen). The differences in

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*Mull-soy, manufactured by the Borden Company.

TABLE I. AGE WHEN COW'S MILK INTRODUCED IN DIET OF EXPERIMENTAL GROUP—91 INFANTS

AGE	NO. OF PATIENTS
Under 1 mo.	5
1-3 mo.	19
3-6 mo.	17
6-9 mo.	46
Over 9 mo.	4

TABLE II. LENGTH OF FOLLOW-UP OF EXPERIMENTAL GROUP—91 INFANTS

FOLLOW-UP	NO. OF PATIENTS
7-12 mo.	6
1-2 yr.	18
2-5 yr.	43
5-11 yr.	24

TABLE III

	EXPERIMENTAL GROUP FED SOYBEAN MILK FROM BIRTH	SIBLINGS	NONRELATED CONTROL GROUP
Incidence of major allergy	14/91 (14%)	41/65 (64%)	91/175 (52%)
Incidence of atopic dermatitis	7/91 (8%)	21/65 (32%)	50/175 (29%)
Allergic sequelae of atopic dermatitis	1/7 Asthma at 3 yr. 6/7 (86%) Still normal at 6 yr.	10/20—Asthma by 4 yr. 4/21—Hay fever at 6 yr. 1/21—P.A.R. at 5 yr. 6/21—Normal at 6 yr.	24/50—Asthma at 5 yr. 6/50—HF by 5 yr. 20/50—Normal at 6 yr.
Incidence of other allergies to cow's milk	6/91 (7%)	24/65 (37%)	53/175 (30%)
Allergic sequelae to cow's milk allergy	None at 6 yr.	11—Asthma at 6 yr. 4—HF at 5 yr. 1—P.A.R. 6—Chronic atopic dermatitis	24/53—Asthma 5/53—HF 1/53—P.A.R. and HF

P.A.R.—Perennial allergic rhinitis.

HF—Pollinosis (hay fever).

the incidence of atopic dermatitis and of the other allergic manifestations of allergy to cow's milk (diarrhea, colic, etc.) are similarly statistically significant. The incidence of allergic sequelae in the three groups shows an even more significant difference between the experimental and the two control groups.

DISCUSSION

As far as the experimental group in this study has been followed, the data suggest that the complete withholding of the first food commonly ingested by a potentially allergic newborn infant (cow's milk) for a period of six to nine months may offer a hope of decreasing or minimizing the incidence of the most troublesome allergic disorders in young children. The data also lend support to the concept that an immunologic immaturity in potentially allergic children makes them more susceptible to sensitization via the gastrointestinal tract in the early months of life than toward the end of the first year.

The incidence of allergic sequelae to atopic dermatitis and other evidences of cow's milk allergy are especially interesting in view of the recent work of MacKinney and Glaser² which showed that 80 per cent of infants with atopic dermatitis eventually develop asthma or some other respiratory allergy. This is in marked contrast to the findings in infants fed soybean milk from birth and who nevertheless developed atopic dermatitis, of whom, as indicated in Table III, only one out of seven (14 per cent) developed a respiratory allergy. One very interesting family in this survey consisted of five children, all of whom had congenital milk allergy. In four of the children the cow's milk caused atopic dermatitis; two asthma. By contrast, the sibling, who was placed on soybean milk from birth, has not developed any major allergies by six years of age, despite the fact that he developed diarrhea from cow's milk when it was first introduced at 8 months of age. He still cannot tolerate cow's milk.

SUMMARY AND CONCLUSIONS

Ninety-one potentially allergic infants were kept on a diet completely free from cow's milk from birth for varying periods of time up to nine months of age. Their allergic histories were compared to those of 65 siblings and 175 unrelated control children. Major allergic disease developed in 14 per cent of the experimental group, in 64 per cent of the siblings, and 52 per cent of the unrelated control group. Atopic dermatitis and other expressions of allergy to cow's milk occurred approximately four times more frequently in the two control groups. Allergic sequelae to allergy to cow's milk occurred in 16 per cent of the experimental group, 75 per cent of the siblings, and 60 per cent of the unrelated control group. These differences are all statistically significant.

REFERENCES

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