nine cases, spasmophilia in three cases, chronic rheumatic hearts in two cases, and multiple abscesses, erysipelas, syphilis and furunculosis and typhoid fever, each once. In one case, there was the question of inhalation of a foreign body, and in one case tuberculosis was probably present.

COMPLICATIONS.

Empyema occurred in five cases, four of whom died. One case showed bilateral pyothorax. A sterile pleural effusion was encountered twice. *Otitis media* occurred thirteen times (13.7 per cent.), indicating that it is a common complication. *Acute fibrinous pericarditis* was once encountered. Other occasional complications have been noted; *stomatitis* and *laryngitis* have each occurred twice; conjunctivitis, pustular dermatitis, tonsillitis, abscess of the buttock, impetigo contagiosa have each been seen once. *Diphtheria* followed the pneumonia in three cases. In one fatal case, a persistent thymus was found at necropsy.

Prognosis. Something has already been said concerning the mortality from bronchopneumonia in infancy and childhood. Dunlop, in an excellent clinical analysis of 356 cases, has developed the following general dicta as regards prognosis:

1. The younger the child, the worse the prognosis.
2. The greater the extent of the lung involvement, the higher the mortality. In 73 per cent. of deaths, both lungs were involved. In our own series, both lungs were involved in 80 per cent. of fatal cases, while in three fatal cases, the distribution is not stated.
3. Bronchopneumonia, following measles, pertussis, and diphtheria, has a high mortality.
4. The previous state of health is important (and, indeed, the most casual observer cannot but be struck with the ill-nourished, ill-cared-for and abjectly wretched condition of many of the small victims of this disease).
5. Bronchopneumonia, in the rachitic, is of notable severity. Thirty-four of Dunlop's deaths showed a preëxistent severe rickets, and seven, or 20 per cent., of our own cases.
6. The presence of diarrhoea is a bad sign.
7. Temperature exceeding 105 is to be viewed with alarm. It must be said that hyperpyrexia occurred in only four fatal cases in our series. The writer cannot establish, to his satisfaction, any connection between the temperature curve and the outcome of the disease. Dunlop's state-

ments are quoted because they seem to be the result of careful observation on an extended series of cases.

Recurrent Attacks of Pneumonia. One patient was twice admitted within one year to the service, suffering from bronchopneumonia, and recovered.

SUMMARY.

During a period of two years, 208 cases of lobar and bronchopneumonia in patients of 12 years of age, or younger, have been admitted to the Pneumonia Service of the Boston City Hospital, of whom 109 were of the lobar and 99 of the lobular type.

The total death rate in the lobar pneumonias was 4.6 per cent., but in uncomplicated cases, it was only 1.9 per cent.

The total death rate in bronchopneumonias was 35.1 per cent.; 74.3 per cent. of these deaths were in patients two years of age or younger.

The clinical behavior of both groups parallels in general that recorded by other observers.

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ECZEMA IN THE BREAST FED BABY, AND PROTEIN SENSITIZATION.

BY EDWARD SCOTT O'KEEFE, M.D., BOSTON.

[From the Children's Medical Service of the Massachusetts General Hospital.]

ECZEMA in the breast fed baby has always been a difficult problem, and in a certain percentage of cases will remain so for some time to come. With these little ones, external measures are similar to those used in the older patients except for the restraint from scratching which is necessitated here. The other therapeutic avenue of approach, that is, the dietary, has not seemed a very hopeful one. In the bottle fed, and in older children, there has always seemed to be an opportunity to improve, or at least to change the diet. On the other hand,

the dictum that breast milk is the best food for the baby has seemed to discourage attempts at dietary therapy in the case of the nursling.

Most text-books recommend such measures as a change in the interval of nursing, or the giving of water or lime water before nursing. The result accomplished is frequently to diminish the amount of breast milk ingested. A common mistake in treating these infants is to take them off the breast entirely. Such a procedure has obvious disadvantages as far as the child's general health is concerned, and rarely results in an improvement of the eczema.

The problem is often rendered more obscure by the apparent complete agreement of the breast milk with the infant's digestion. Many of the infants are having satisfactory movements, normal gains in weight and are without gastric symptoms.

In the older children with eczema, fats, sugars, cereals, acid fruits, etc., according to the fancy or prejudice of the physician, are omitted from the child's diet. This is usually done upon no very well established grounds. In other cases, the diet is regulated in order that it may be suitable for the child's age and needs. The latter method is a rational one, and often productive of an improvement or cure of the eczema. In the breast fed, however, we have what is admittedly the best food for the infant. The question arises whether or not that food, in the case of the eczematous nursling, contains a deleterious element, such as a foreign protein.

Upon this question the cases here reported seem to throw some light. They were treated in a sub-clinic of the Children's Medical Department of the Massachusetts General Hospital, in conjunction with the Dermatological Department of that institution. These cases have all been diagnosed as eczema, at the skin clinic, and there have received local treatment.

I have selected from the general eczema clinic forty-one consecutive cases which were exclusively breast fed. Care was taken to ascertain, in each case, whether or not cow's milk or egg had ever been given to the infant, especial inquiry being made regarding the first few days before the breast milk was fully established.

Skin tests were done on these cases according to the usual method of linear scarification. A commercial protein was used with tenth normal sodium hydrate as a solvent. Only the cases which gave a definite wheal, with redness,

were called positive. Doubtful reactions were repeated at a later date, and unless a definite reaction was then obtained, have been called negative in this series. A table of the results of the skin tests follows:

TABLE SHOWING RESULTS OF CUTANEOUS TESTS UPON THE INFANTS, PLUS INDICATING SENSITIZATION.

	Beef	Corn	Casein	Egg	Lactalbumin	Wheat	Cod	Pork	Oats	Tomato	Human Milk	Potato	Barley	Coffee	Haddock	Onion	Tea	Cocoa
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3																		
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38																		
39																		
40																		
41																		
Total																		

In the eczema of older children, milk and egg proteins have given the most frequent responses to cutaneous tests. These proteins were consequently used in every case, as well as other proteins, if opportunity was afforded or if negative reactions were obtained in this first group. In out-patient clinics, there is often difficulty in following cases for any length of time. Many parents brought the child but once, of their own accord, and, when induced

to come later, stated that they had not returned owing to the improvement of the child's condition. There were others who became discouraged owing to the persistence of the condition. However, the most severe cases usually were under observation for a sufficient length of time to show whether the treatment instituted was beneficial or ineffectual.

Of the forty-one cases in the table, twenty-five babies, or about 61%, showed a positive reaction to some one or more of the proteins used. Seventeen, or 41% showed a positive reaction to one of the egg proteins. Sixteen cases, or 39%, showed a positive reaction to one of the cow's milk proteins. Oats appeared twice and wheat once. In each case of sensitization to the cereal proteins, egg or milk proteins also gave a positive response. No sensitized case among these breast fed infants failed to show a positive response to either egg or milk proteins, and about 20% of these sensitized cases showed a positive response to both.

Sensitization to food proteins can occur in the breast fed, in no other way apparently, than through foreign proteins ingested in the breast milk, as suggested in a recent article by the author.* Acting upon this theory, it has been a routine procedure to omit, or at least to limit, in the maternal diet, the food or foods to which the nursing shows a cutaneous reaction. Whenever eggs and milk were omitted or limited in the maternal diet, cod liver oil and green vegetables were prescribed for the mother, in order that no vitamin deficiency should arise in the breast milk.

These cases have at all times received external treatment in the skin department of the hospital. A combination of the external treatment with dietary study and regulation is the ideal arrangement for the management of this class of cases, as well as for the eczema in the older children.

An analysis of the results of treatment shows that seventeen of the forty-one cases have been relieved of their condition entirely. In fourteen of these cases the time elapsing between the beginning of treatment and the clearing of the skin could be definitely set. The average time under treatment for this group of fourteen was one and two-thirds months. Nine cases showed definite improvement after an average of one and seven-tenths months' treat-

ment. Four cases did not seem to be improved after an average of one and one-half months' treatment. Seven cases came only once, and their progress has not been determined. The remaining four cases came too recently under treatment to allow conclusions to be drawn regarding their course.

CONCLUSIONS.

A large percentage of breast fed infants suffering from eczema show a positive cutaneous reaction to food proteins. Foreign proteins occurring in the breast milk are the most probable means of such sensitization in this group of cases.

Egg and cow's milk proteins give the most frequent positive skin reactions.

Apparent cure in about 40% of these cases, and definite improvement in about 20% more of the cases, has followed the omission or limitation in the maternal diet of one or more food proteins to which the infant is sensitive.

SIGNIFICANT REACTIONS OF THE ARTERIAL TENSION. MANIFESTATIONS OF THE ANGIO-KINETIC ENERGY CLINICALLY OBSERVED AND INTERPRETED.

BY CLAES JULIUS ENEBUSKE, BOSTON.

(Concluded from page 181)

Section IX. Physiological Mechanism of the Biochemic Angio-kinetic Toxaemia Reaction.

Granted that toxic influence is removed, why is the arterial tension from opposite aberrations altered to always and continuously the same level of 150 m.m. Hg? The representations, in previous chapters, of the angio-kinetic activity in the circulatory periphery facilitate the answer. The normal adjustment of the cardio-vascular, neuro-muscular mechanism, under physiological conditions, is expressed at the radial artery by a maximal tension exceeding 140 m.m., not exceeding 150 m.m. Hg. Toxic afferent indirect, or direct excitation, causes, in certain individuals, a sustained pressor-action, under certain circumstances, and in others, depressor action. When the author's biochemic angio-kinetic toxaemia reaction is positive, the mechanism consists in an automatic readjustment to normal coördination of the vasomotor nervous and arteriolar muscle-cells, because the toxic excitation which, by direct or indirect in-

* BOSTON MEDICAL AND SURGICAL JOURNAL, Vol. cxxxiii, No. 20, Nov. 11, 1920.