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SPECIAL FEATURES IN ALLERGY IN CHILDREN¹

By

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INCIDENCE OF ALLERGIC DISEASES IN CHILDHOOD

There is a great variation in the figures on the incidence of allergic diseases. This is very likely to depend on the investigator and the methods used. A number of allergic manifestations are not recognized by doctors and far less by the laymen, and therefore remain unconsidered. Even allergists may at times have difficulties in determining whether symptoms of a disease are of allergic origin or not.

Let me mention some recent investigations on the occurrence and distribution of allergic diseases in children carried out in Finland. *M. I. and T. E. Peltonen* and *A. Kasanen* at the Children's Clinic and the Institute of Hygiene and Social Medicine of the University of Turku studied the incidence of allergy in 4832 Public School children. Of these children 3386 lived in 59 typical rural communities, 524 in 4 smaller towns and 912 in the city of Turku which has a population of about 100,000. In addition to the medical examination performed, a thorough questionnaire was sent to the children's parents. Further information was obtained from the school health cards, from records from the child health centers frequented by the children before school age and through the regular school nurse who is well acquainted with

¹ Opening lecture at the Fourth Northern Congress of Allergy in Oslo, 10-11 Sept. 1954.

TABLE 1
Distribution of Allergy in 4832 Public School Children.

	Total	Allergics	%
Boys	2,312	171	7.39
Girls	2,520	157	6.23
	4,832	328	6.81

the families. The material was thus thoroughly collected and assembled.

Of the 4832 children examined, 2312 were boys and 2520 girls (Table 1). 328 children (6.8 %), 171 boys and 157 girls, suffered from different allergic diseases. The distribution of the various manifestations is illustrated in Table 2. 77 % of the allergic children suffered from skin manifestations: eczema and urticaria. The frequency of infantile eczema was 3 %, of urticaria 2.2 %, whereas the frequency of bronchial asthma was only 0.6 %.

The distribution of allergy in relation to age (Fig. 1), shows that allergic manifestations in children decrease with age. The reason for this could be that the child has conquered his decrease spontaneously or after treatment. However one must bear in mind that a number of allergic children are forced to discontinue attending school because the way is too long or because contact with new allergens or repeated

TABLE 2
Distribution of Allergy in 4832 Public School Children.

	Allergics	Percentage distribution	Frequency
Infantile Eczema	145	44	3.0
Urticaria	109	33	2.2
Bronchial Asthma	27	8	0.6
Rhinitis	18	6	0.4
Other Allergies	29	9	0.6
	328	100 %	6.8 %

infections have aggravated their disease. Figure 2 shows the distribution of allergy according to residence. The frequency of allergy was least among children from the rural communities, and greatest in the city of Turku, thus increasing with



Fig. 1.

Occurrence of Allergy in School Children of Different Age.

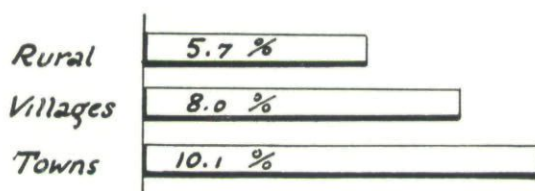


Fig. 2.

Distribution of Allergy in School Children in Relation to Residence.

housing density, an observation that also has been made by other investigators.

A similar study as above has been carried out among Public School children in Helsinki, the capital of Finland,

TABLE 3
Distribution of Allergy in 27,999 Public School Children.

	Total	Allergics	%
Boys	14,668	496	3.4
Girls	13,331	523	3.8
	27,999	1,019	3.6

with about 400,000 inhabitants. These results are mainly based on the health cards, which are regularly filled out by the school nurse, and supplemented at the examination performed by the school doctor. Previous allergic diseases thus do not appear as regularly on these cards as in the above mentioned investigation.

The material comprises 27,999 children aged 7-14 years (Table 3), 14,668 boys and 13,331 girls. The total number

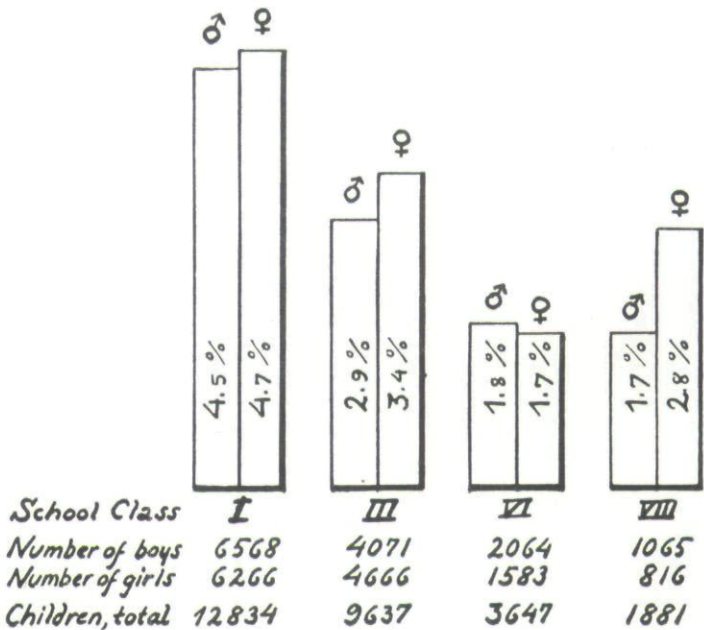


Fig. 3.

Occurrence of Allergy in Public School Children of Different Age.

TABLE 4
Distribution of Allergy in 27,999 Public School Children.

	Allergics		Frequency	Percentage Distribution
Bronchial Asthma	Boys	118	0.4	19.0
	Girls	75	0.3	
Eczema	Boys	248	0.9	57.2
	Girls	335	1.2	
Other Allergies	Boys	130	0.4	23.8
	Girls	113	0.4	
Total		1,019	3.6 %	100.0 %

of children with signs of a manifest allergic disease was 1019 (3.6 %); i.e., 3.4 % of the boys and 3.8 % of the girls. The same general tendency as in the Turku material can also be observed here. The frequency of allergy decreases with increasing age in boys as well as in girls (Fig. 3), except in the 8th grade, in which the increase among the 13-14 years girls probably is due to influence of puberty. Further it can be observed that the asthma frequency is greater in boys, whereas in girls the eczema frequency predominates, a relation which I will later discuss (Table 4). This investigation shows that the allergy frequency found among school children of Helsinki was not even half as great as among the Turku children. The reason for this may be that the eczema frequency, which is greater in infancy and earlier childhood, was not to the same degree taken into consideration in the Helsinki material as in that of Turku. Bronchial asthma, however, which continues in school age, is about equally frequent in both materials.

How do these figures compare to the occurrence of allergies in adults? No exact studies on this subject have previously been performed in Finland. In Autumn 1954 an investigation was carried out among recruits 18 years of age from the Helsinki military district to which I have the opportunity to

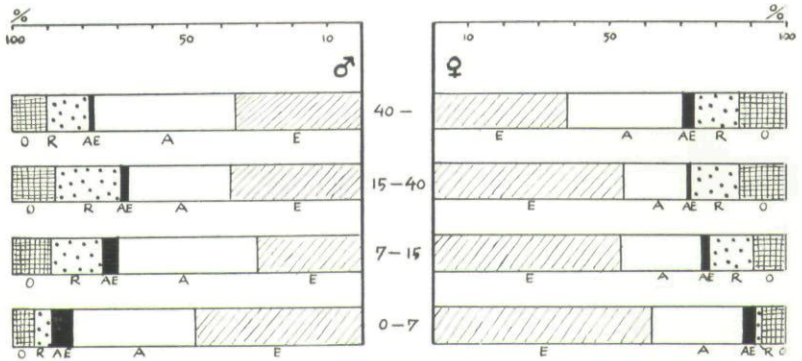


Fig. 4.

Percentual Distribution of Allergic Diseases in 4059 Patients
(Out-Patient Department).

A = Asthma. E = Eczema. AE = Asthma + Eczema. R = Rhinitis.
O = Other Allergies.

refer through the courtesy of the Surgeon General of the Finnish Army, P. Somer. Out of 2178 inspected recruits 21 (0.96 %) were rejected for one or more years because of bronchial asthma. This figure is in close conformity with the 0.9 % stated by *Williams* for prevalence of asthma as cause of rejection from the Army forces in the 18 year age group in England and Wales. According to the same writer the incidence of asthma in the adult population is 0.9 %, which information he has obtained from the investigation of *Stock* on Sickness in the Population of England and Wales in 1944-47. These figures are in interesting conformity with a survey conducted by *Collins et al.* among the white population in Baltimore in 1939-43 giving a 0.94 % rate for bronchial asthma.

DISTRIBUTION OF DIFFERENT ALLERGIC DISEASES IN RELATION TO AGE AND SEX

In order to get some idea of the distribution of different allergic diseases in relation to age and sex a study was made of the patients who during 1951-54 visited the out-patient department of the Hospital for Allergic Diseases in Helsinki.

TABLE 5
*Distribution of Allergy in 4059 Patients at the Out-Patient Department of
 the Hospital for Allergic Diseases, 1951-54.*

Number of children	Asthma	%	Eczema	%	Asthma + Eczema	%	Rhinitis	%	Other allergies	%	Age class
Boys	539	35.4	149	48.0	18	5.8	17	5.4	17	5.4	0-7 yrs.
	92	40.0	68	30.0	9	3.9	35	15.4	24	10.7	7-15 "
Girls	544	26.6	181	62.0	10	3.4	6	2.0	18	6.0	0-7 "
	58	23.0	133	53.0	6	2.4	33	13.2	21	8.4	7-15 "
Total	1083	338	531	43	91	80					
Number of adults											
Men	855	29.4	191	38.0	10	2.0	94	18.8	59	11.8	15-40 "
	147	41.5	126	36.0	5	1.4	42	12.0	34	9.1	40- "
Women	2121	18.4	697	54.0	20	1.3	183	14.0	163	12.3	15-40 "
	277	33.0	320	38.6	21	2.5	102	12.6	108	13.3	40- "
Total	2976	801	1334	56	421	364					

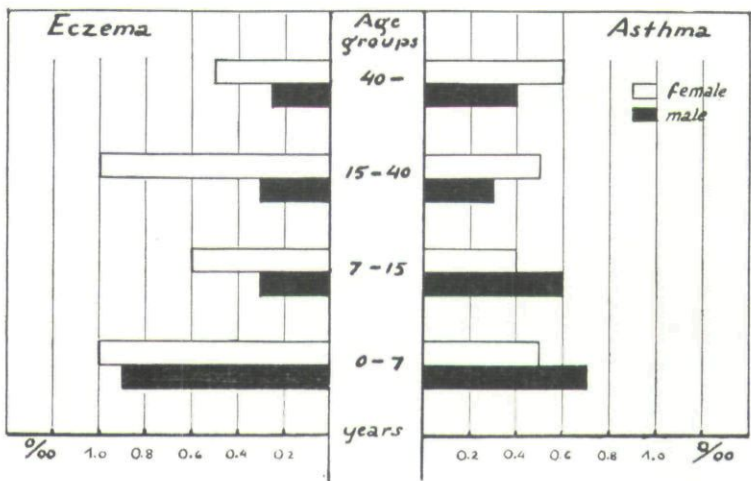


Fig. 5.

Asthma and Eczema Patients from the Hospital for Allergic Diseases, in pro mille of Total Population.

These patients came from different parts of the country. Of the 4059 patients examined 1083 were children and 2976 adults. The distribution of the main allergies in relation to age and sex is seen in Fig. 4 and Table 5. The frequency of these diseases was about the same in boys under 15 as in girls of the same age. Among adults, however, the occurrence was perceptibly larger in women than in men. The distribution of the different allergies shows that in boys bronchial asthma and the combination of asthma and eczema, in our opinion a specially difficult form of allergy, are predominating, while in girls the predominating form is eczema. This same tendency is noticeable in adults. Younger men suffer more from asthma than women, in whom the eczema frequency appears to be greater. After the age of 40 eczema is equally common in both sexes.

In order to study the severity of the allergy cases treated at the Hospital for Allergic Diseases, a comparison was made between patients treated at the out-patient department and in the wards. As the hospital at present has but 45 beds, only

TABLE 6
Distribution of Allergy in the Different Age Classes
(3012 out-pat. department, 1413 Ward patients).

Age (years)		Asthma		Eczema		Rhinitis		Other Allergies	
		Out-patient Dept.	Wards	Out-patient Dept.	Wards	Out-patient Dept.	Wards	Out-patient Dept.	Wards
0-7	♂	128	117	149	158	17	7	17	7
	♀	88	17	181	146	6	1	18	4
7-15	♂	101	97	68	21	35	16	24	1
	♀	64	56	133	56	33	3	21	1
15-40	♂	157	59	191	28	94	6	59	1
	♀	250	110	697	103	183	12	16	10
40-	♂	152	72	126	26	42	5	34	4
	♀	298	156	320	38	102	6	108	9

the most severe cases can be admitted (Table 6). This comparison revealed that the distribution of asthma was surprisingly even between children treated in the out-patient department and the wards. In the adult group, however, a remarkable high number of patients of both sexes had their treatment

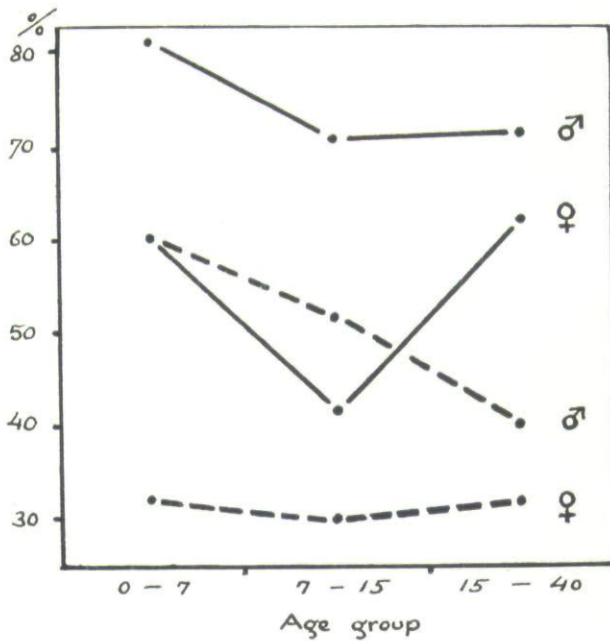


Fig. 6.

Onset of Allergy at < 6 Months.

———— Eczema.

----- Asthma.

at the out-patient department compared to the wards. This apparently was partly due to the mildness of the cases and partly to the lack of sufficient beds in the hospital. The considerably greater number of women in all allergy groups, including also the most severe cases treated in the wards, is conspicuous. This fact cannot possibly be explained only by the greater number of women in general compared to the men.

In the children's eczema group the great number of severe eczemas in boys up to 7 years of age is remarkable. After this age the number of boys, whose eczema could be treated in the out-patient department, increases. We again find the predominancy of eczema in girls as compared to the boys, a relation previously mentioned in women as compared to men.

How do these results obtained at a single hospital, though it be the only one of its kind, reflect the distribution of allergic diseases throughout the country? To clarify this we used statistics from the State Statistics Bureau on the distribution of the Finnish population according to sex and age for the years 1951-52. Fig. 5 illustrates our patient material in pro mille of the whole population. The result thus obtained varies in no great extent from the ones reported above. In boys bronchial asthma is the dominating disease to the age of 15. After this age asthma is more frequent in women and increases with age. Up to 7 years there is no remarkable difference in the frequency of eczema in boys and girls. After this age the eczemas dominate in the females in all age groups. Here I wish to stress that this calculation is valid only if one presumes that the population as a whole has visited the Hospital for Allergic Diseases in the same proportion.

Our investigations have shown that asthma predominates in boys up to the age of 15, afterwards it is more commonly seen in the female sex. On the other hand, the eczemas are more frequent in women of all ages. In what age then do the first allergic symptoms appear? In how many cases have symptoms been verified before the age of 6 months? Fig. 6 shows the result of an investigation made of ward patients treated at our hospital and of whom a detailed history had been taken. It shows a considerable difference between the sexes. In the males of all ages suffering from asthma or eczema the first allergic symptoms appeared before the age of 6 months at a far higher percentage rate than in the females. Eczema boys between 0-7 years showed allergic symptoms before the age of 6 months in 80 % of the cases, while the corresponding per cent in asthma boys of the same age

group is 60 %. In girls of the same age groups the percentages are, respectively, 60 % and 30 %. These results are in conformity with an earlier investigation of mine on 200 Finnish children, which showed that asthma begins earlier in boys than in girls. An investigation by *Flensburg* on Danish children proved that the incidence of bronchial asthma is greater and starts earlier in boys than in girls. In a study made by *Eriksson-Lihr* of 243 asthma children in Finland, 59 % of the boys and 51.9 % of the girls had suffered from or still showed allergic skin manifestations at the onset of asthma. In good conformity with the results described—showing the greater eczema frequency in girls after 7 years as compared with boys—is that in the above mentioned material 37.7 % of the girls but only 19.4 % of the boys still suffered from eczema when they first came for treatment for their asthma although a greater part of the boys had allergic manifestations of the skin in earlier childhood.

THE CAUSES OF ALLERGY IN ACCORDANCE TO AGE AND SEX

In my previously mentioned investigation on *Allergy and Infection*, a close study of the history and the clinical, laboratory and X-ray examinations of the asthmatic children was undertaken in order to form an opinion on the causes of their disease. The cases were divided into four groups:

- (1) the non-infectious,
- (2) the primary non-infectious, secondary infected,
- (3) the primary infectious with secondary allergy to other allergens,
- (4) the purely infectious.

This investigation brought forth that boys predominately belonged to the first two groups and girls to the last two. So for example, in the 7-15 year age group 80 % of the boys, but only 40 % of the girls primarily developed their asthma because of contact with inhalants, ingestants or other pure

TABLE 7
*Distribution of Different Allergic Diseases in 3541 Patients,
 According to Age and Sex.*

Age, years	Total	Asthma	Eczema	Rhinitis	Timothy+	Timothy %
♀						
0-5	240	73	166	1	0	0
5-10	149	56	83	10	0	0
10-15	125	29	77	14	5	4.0
15-	1737	484	1014	195	44	2.4
Total ♀	2251	642	1340	220	49	2.2
♂						
0-5	258	106	146	5	1	0.4
5-10	169	88	61	8	12	7.0
10-15	132	63	36	11	22	16.6
15-	731	282	313	94	42	5.7
Total ♂	1290	539	556	118	77	6.0

allergens, whereas in 60 % of the girls and only 20 % of the boys attacks of asthma had occurred the first time in close connection with an infection. This observation was confirmed also in a study of the skin tests in the same children; the skin tests being frequently more pronounced in boys especially in the older age group.

Because of the great importance of infection in allergy, this time our ward material was studied from the same view point as above (Fig. 7 and 8). It should be noted that in this material (1413 cases) the same tendency can be seen as in the previous smaller material. A predominance of pure allergy over infection as the primary cause of the disease is found in all age groups of boys in both asthma and eczema cases. On the other hand, girls, to a greater extent than boys, seem to develop their allergic manifestations, be it asthma or eczema, in close connection with an infection. In the older age groups this is also true in eczema in both sexes. In asthmatics over 40 years of age infection seems to play an ever increasing roll. See Fig. 9 and 10.

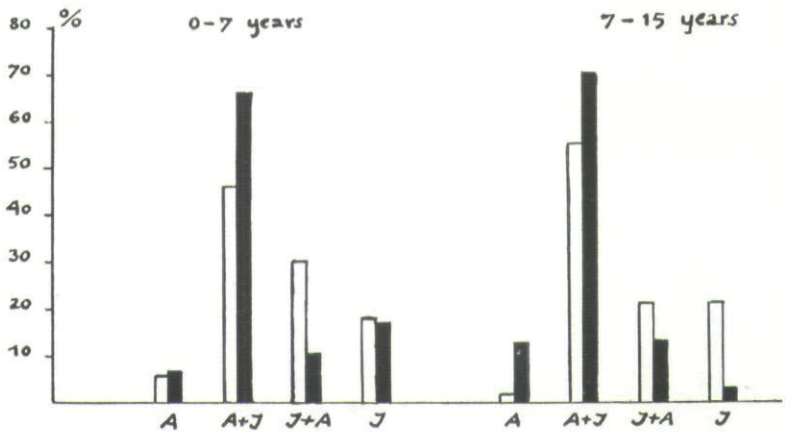


Fig. 7.

Incidence of Pure Allergy and Infection in Asthma Patients.

□ ♀ ■ ♂

From Table 7 it can be seen that in children the incidence of asthma and eczema decreases in both sexes with age, whereas vasomotor rhinitis increases in both boys and girls. Interesting in this same table is the occurrence of hay fever

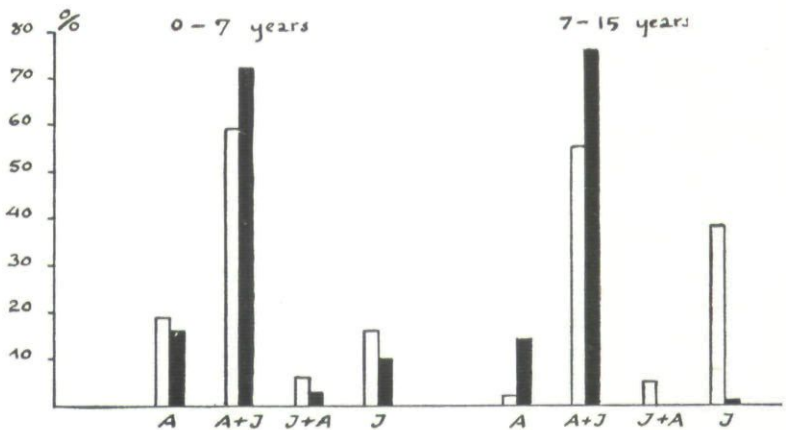


Fig. 8.

Incidence of Pure Allergy and Infection in Eczema Patients.

□ ♀ ■ ♂

and sensitivity to timothy. In the girls no sensitivity to timothy was observed before the age of ten. In the boys at the age of 10 months the first case of sensitivity to timothy pollen was seen. In the total group of 514 girls under 15 only 5 cases of timothy sensitivity were seen (1 %), while among 559 boys 35 cases were found (6.2 %), showing a remarkable increase with increasing age. In females over 15 years of age the incidence of sensitivity to timothy was 2.4 %, while in male patients of the same age the percentage was 5.7 %. No doubt, this difference is due to the fact that in an agricultural country like Finland men in their work are more exposed to timothy.

As Summary:

The incidence of bronchial asthma was higher in boys, and that of eczema in girls.

In boys suffering from bronchial asthma or eczema, symptoms of allergy were more frequently seen at an earlier age than in girls.

In boys the main cause of allergy was pure allergens. Infections were to a greater extent the main cause of allergy in girls.

DIFFERENCES BETWEEN BOYS AND GIRLS

The higher incidence of morbidity and mortality in boys compared to girls is generally established. From the investigations mentioned above and also from earlier reports it is evident that boys show signs of allergy earlier than girls, and are in general attacked by more severe manifestations of it. Boys at birth have a higher weight and are apparently stronger, yet no explanation for their weaker resisting power against the so called life stress has been given.

It is interesting to note the coincidence of allergic diseases in childhood with the growth development of the suprarenals. Hasner, Starkel and Wegrzynowsky and others have demonstrated that the weight of the suprarenals gradually decreases

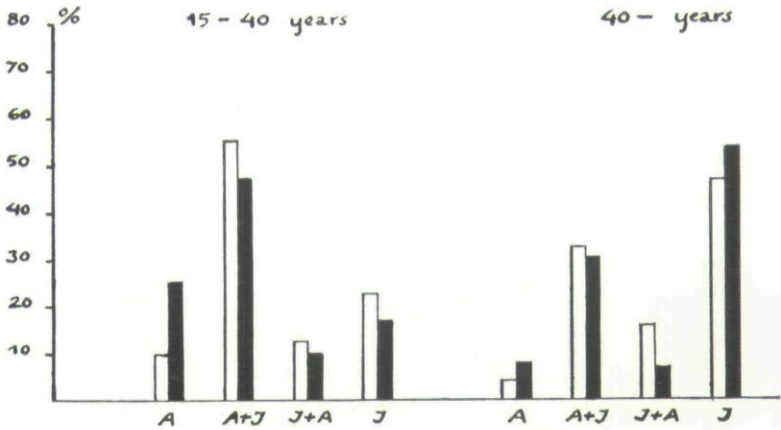


Fig. 9.

Incidence of Pure Allergy and Infection in Asthma Patients.

□ ♀ ■ ♂

after birth attaining its lowest value, about half of the initial weight, at the age of 6 months. From this time on an increase is seen and the initial weight is reached at 5-6 years. From several investigations by different authors it is evident that the majority of the allergic manifestations in children deve-

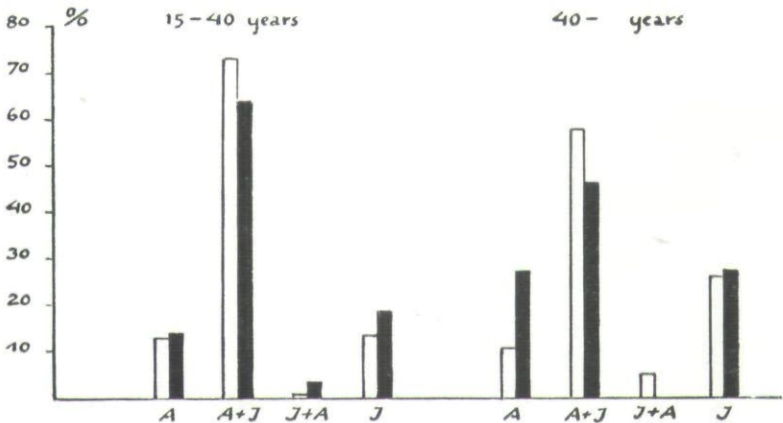


Fig. 10.

Incidence of Pure Allergy and Infection in Eczema Patients.

□ ♀ ■ ♂

TABLE 8

Average weight of adrenal glands with fullterm newborn infants.

	Absolut weight of adrenal glands, g	
	male	female
Scheel (1908)	4.7	5.0
Schilf (1922)	7.37	6.39
Uotila (1940)	6.9	7.0
Castaldi and Vannucci (1941)	9.01	7.19
Tähkä (1951)	6.2	7.0

lope before the age of 6-7 years. My above mentioned material showed that a great part of the allergies in children, mainly in boys, developed before the age of 6 months at the time of the lowest value of the weight of the suprarenals.

Is there a difference in the weight of the suprarenals in boys and girls? Only few authors have in their studies of the anatomy of the suprarenals in the newborn given values for both sexes separately. In the works of *Castaldi* and *Vanucci* and *Schilf* the absolute weight at birth is reported to be greater in boys than in girls, a result which could be expected as the birth weight of boys in general is known to be higher than that of

TABLE 9

Birth Weight in 661 Allergic Children.

Diagnosis	Cases	Fullterm >2500 g	Prematures <2500 g	%
Eczema	Boys 165	165	0	
	Girls 186	181	5	
Asthma	Boys 198	193	5	
	Girls 73	72	1	
Other Allergies	Boys 31	30	1	
	Girls 8	7	1	
Total	661 $\left\{ \begin{array}{l} \text{♂ } 394 \\ \text{♀ } 267 \end{array} \right.$	648 $\left\{ \begin{array}{l} \text{♂ } 388 \\ \text{♀ } 260 \end{array} \right.$	13 $\left\{ \begin{array}{l} \text{♂ } 6 \\ \text{♀ } 7 \end{array} \right.$	$\left\{ \begin{array}{l} \text{♂ } 1.5 \\ \text{♀ } 2.6 \end{array} \right.$

TABLE 10
Kepler and Insuline Tolerance Tests in Children.

	Kepler test			Insuline tolerance test							Kepler +, Ins. tol. test < 3 min.		
	Cases	Kepler +	%	Cases	< 3'	%	3-6'	%	> 6'	%	Cases	< 3'	%
Boys	81	17	21.0	73	12	16.4	37	50.7	24	33.0	65	2	3.1
Girls	59	8	13.5	48	16	33.3	18	37.5	14	29.2	49	1	2.0
Total	140	25	17.9	121	28	23.1	55	45.4	38	31.4	114	3	2.7

girls. The more noticeable it is to find that by other investigators the values of the adrenals at birth are less in boys than in girls (*Scheel, Uotila, Tähkä*), Table 8. It must be admitted that the difference in these values is not great and may not be of importance. Information on the relative weight (ratio of weight of suprarenals to body weight) would have been of decisive importance, but seems to be difficult to find in the literature. Only *Uotila* gives values for this relative weight; namely 0.207 in boys and 0.212 in girls, a rather small difference. One must hope that further investigation on this subject will be performed.

A study of the birth weight in 661 of our allergic children, whose birth weight was known, revealed that the number of prematures in our material was less than could be expected on account of previous investigations in the Northern countries (*Alm* and others) and taking into consideration also the great mortality of these children (Table 9). As we also in other respects have found differences between the prematures and the full-term allergic children we tried to find some information on the weight of the suprarenals in prematures. As can be seen in Fig. 11, published by *Clatworthy* and *Anderson*, the absolute weight of the adrenals increases, whereas the relative weight decreases during the foetal period. This means that the earlier the child is born the greater is the relative weight of the suprarenals. This is also shown in the report by *Ekholm* and *Niemineva*. According to these authors the relative weight in foetuses of 600–1249 grams was 1:281 or 0.35 % and in those of 1250–2500 grams it was 1:94 or 0.25 %. Does this mean that prematures, who at birth have relatively greater suprarenals, are not as apt to develop allergy to the same degree as full-term children? *Tähkä* found that in premature birth the relative weight of the adrenals was higher during the first two weeks of life, but it then decreased at a greater rate than in the full-term. The lowest value was found in the 1–2 month age group, representing about 53 % of the weight at birth. Also in prematures the death rate of boys has been found significantly higher than

TABLE 11
Determination of 11-oxycorticosteroids in 26 allergic Children.

Cases		Asthma	Eczema	Asthma Eczema	Rhinitis	Normal value	Low value	$\frac{0}{10}$
Boys	16	9	2	3	2	1	15	94
Girls	10	5	3	1	1	5	5	50
Total	26	14	5	4	3	6	20	77

that of girls (Möller). The time of the lowest weight of the adrenals in prematures coincides with the time of the highest mortality risk in them; namely the first two months of life. Could it be that the weakest prematures die at this period? And what biochemical and other qualities do the survived possess which prevent them from developing allergy to the same extent as fullborn infants? An interesting question.

As to the weight of the adrenals in premature newborns, Schilf gives the values 2.91 in boys and 3.99 in girls. A significant difference. When considering the values for the weight of the suprarenals we have to remember that these values

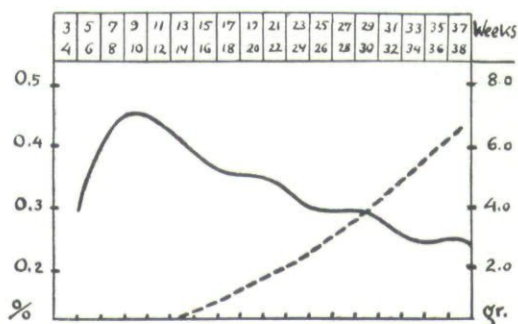


Fig. 11.

Development of the absolute and relative weight of the adrenals in the foetal period, according to Clatworthy and Anderson.

— relative weight, %.

----- absolute weight, gr.

concern the suprarenals as a whole. A differentiation between foetal and permanent cortex and the medulla is found in so few investigations that they cannot yet be discussed.

What relation is there between anatomical findings and the function of the suprarenals? According to *Goldzieher* (1946) the great hydrolability seen in infants is due to relative insufficiency of the suprarenals. If in allergy a disturbance in the function of the pituitary-cortical system with its different target organs can be demonstrated, one would presume according to the above mentioned observations that this disturbance is more pronounced in boys than in girls.

A study of the *Robinson-Power-Kepler* test in 140 children suffering from different allergic diseases (Table 10) showed that 21 % of the boys but only 13.5 % of the girls were positive (Index < 25). From recent investigations on several hundred allergic cases in our hospital we have concluded that this test showing a disturbance in the salt and water metabolism is positive in the most severe cases of allergy. The *insulin tolerance* test showing a disturbance in the carbohydrate metabolism, the disturbance most seen in allergy, was low (latency time under 6 min.) in 67 % of the boys and 71 % of the girls. The lowest values (latency time under 3 min.) were more often seen in the girls (33.3 %) than in the boys (16.4 %). The most severe disturbance (Kepler test < 25 and Insulin latency time < 3 min.) was found in 2 boys out of 65 examined and in one girl out of 49.

A direct determination of 11-oxycorticosteroids in 26 allergic children is seen in Table 11. In 94 % of the boys and 50 % of the girls subnormal values could be found.

These studies indicate that the function of the suprarenal cortex in boys suffering from different allergic diseases is inferior to that of the girls. This would give an explanation to the observation mentioned above that allergic manifestations and especially its most severe forms are more frequently seen and develop at an earlier age in boys than in girls. Further studies on this subject are needed emphasizing the

great value of research in pediatric allergy as one link in the chain of co-operative work needed to solve the important problem of allergy.

SUMMARY

A study of 4832 public school children in the western part of Finland revealed that 328 (6.8 %) suffered from allergic diseases. The frequency of infantile eczema was 3 %, of urticaria 2.2 %, and of bronchial asthma 0.6 % (Peltonen and al.). A similar study of 27,999 public school children in Helsinki showed that 1019 (3.6 %) suffered from allergy. The asthma frequency was greater in boys, the frequency of eczema in girls.

In 1851 children treated at the out patient department and the wards of the Hospital for Allergic Diseases in Finland

the incidence of bronchial asthma was higher in boys, that of eczema in girls.

Symptoms of allergy were more frequently seen at an earlier age in boys suffering from bronchial asthma or eczema, than in girls.

In boys the main cause of allergy was pure allergens.

Infections were to a greater extent the main cause of allergy in girls.

The occurrence of allergic diseases in childhood and their coincidence with the growth development of the suprarenals is discussed. According to some authors the absolute weight of the adrenals is less in newborn boys than in girls, regardless of the greater body weight of the former. Kepler and insulin tolerance tests and 11-oxy-corticosteroid determination in allergic children indicate that the function of the suprarenal cortex in boys is inferior to that of the girls.

In previous publications by the author the opinion was brought forth that the allergic diseases are diseases of adaptation due to a relative insufficiency of the hormonal system of

the organism, specially of the pituitary cortical system. In accordance with this theory the above study would give an explanation to the observation, that allergic manifestations and in particular their most severe forms are more frequently seen and develop at an earlier age in boys than in girls.

RESUME

Un examen de 4832 élèves des écoles municipales en Finlande de l'ouest a montré que 328 (6,8 %) souffraient de maladies allergiques. La fréquence d'eczéma infantile était 3 %, d'urticaire 2,2 % et d'asthme 0,6 % (Peltonen et al.). Un examen semblable de 27.999 élèves des écoles municipales à Helsinki montrait, que 1019 (3,6 %) souffraient d'allergie. La fréquence d'asthme était plus grande parmi les garçons, la d'eczéma parmi les filles.

Parmi 1851 enfants traités dans la clinique et dans le dispensaire de l'hôpital d'Allergie en Finlande,

l'asthme était plus fréquent chez les garçons, l'eczéma chez les filles.

Garçons souffrants de l'asthme ou de l'eczéma montraient plus souvent de symptôme allergique en jeune âge, que les filles.

La cause principal de l'allergie était chez les garçons les allergènes pures, chez les filles plus souvent des infections.

L'occurrence des maladies allergiques dans l'enfance et leur coïncidence avec le développement des surrénales est discutée. Selon quelques auteurs est le poids absolu des surrénales plus petit chez les garçons nouveau-nés que chez les filles, malgré le plus grand poids corporal des premiers. Les tests de Kepler et d'insuline et la détermination des 11-oxy-corticostéroïdes chez les enfants allergiques indiquent que la fonction du cortex surrénalien des garçons est inférieure à celle des filles.

Dans des travaux antérieurs l'auteur a présenté son opinion que les états allergiques sont maladies d'une adaptation

déficiente, dépendant d'une insuffisance relative du système hormonale de l'organisme, particulièrement de l'axe hypophyso-surrénalien. Selon cette théorie le plutôt rélaté recherche donnerait une explication à l'observation, que les manifestations d'allergie et spécialement leurs formes les plus difficiles se présentent plus souvent et paraissent en plus jeune age chez les garçons que chez les filles.

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