

Hyperkinetic Syndrome: The Role of Allergy among Psychological and Neurological Factors

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The role of allergies was examined in a clinical sample of 122 successive referrals with suspected Hyperkinetic Syndrome (HKS). The children were examined using general psychiatric, neurological and immunologic measures. According to these examinations, 18 of the 122 children (15%) did not meet the criteria for a diagnosis of HKS. These children served as a small comparison group since healthy children could not be examined for ethical reasons. A history of allergies was more often positive in children with HKS without associated disorders (50%) and in children with HKS and developmental retardations (36%) than in children with HKS and conduct disorders (23%) and the comparison group (17%). The objective immunologic measures which essentially covered IgE-mediated reactions were not significantly different. These results are discussed on the background of delayed non-IgE-mediated reactions and possible psychosocial influences. There were no significant correlations between the neurological and psychiatric measures on the one hand and immunologic measures on the other. Factor analysis on the basis of the applied measures revealed three main dimensions but none of these could be interpreted as distinctive "immunologic" dimension.

Introduction

In recent years, neurophysiological, biochemical and particularly psychological criteria have been used in order to define subgroups of the hyperkinetic syndrome (HKS). The association of allergic factors and hyperactive behaviour in some children has been postulated since 1947 (Randolph, 1947). In 1954, a cluster of symptoms was described by Speer as "Allergic-Tension-Fatigue Syndrome" (Speer, 1954). Children with this "syndrome" may show allergic symptoms and disturbed behaviour such as hyperactivity, irritability, tension and fatigue.

According to empirical studies on pediatric outpatient populations, there seems to be a higher prevalence of allergies or "atopic" symptoms in hyperkinetic children than in the normal population (Rapp, 1979; Tryphonas & Trites, 1979; Kaplan et al., 1987). Roth et al. (1991) reported a high prevalence of attention deficit disorders in atopic children of a clinical population. In a sample of the general population (recruited after media

advertisement), Mitchell et al. (1987) did not find a higher prevalence of atopic symptoms in hyperactive children. In a large sample of children from the general population, McGee et al. (1993) could not find an association between parent, teacher, and self-reports of attention deficit disorder-hyperactivity behaviours and a history of atopic diseases at ages 9 or 13 years. So far, these results suggest, that there is no general correlation of allergy and hyperactive behaviour but there may be clinical subgroups, e.g., children referred to pediatric departments, where hyperactivity and allergy are associated. However, this could be interpreted as reflecting not only on a physical background, but also by psychosocial influences; parents consulting a pediatrician are probably more focused on physical problems and tend to give more somatic explanations for their children's behaviour problems. In such a pediatric clinical population, Egger et al. (1985) also found a positive response of hyperactive behaviours to an oligoantigenic diet.

Thus, it has to be asked whether there is also a higher prevalence of allergies in hyperactive chil-

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dren attending a psychiatric department, where parents requesting help primarily for the behaviour problems may be less focused on somatic problems.

In this exploratory study, the main questions were:

- 1) Do parents of hyperkinetic children attending a child psychiatric clinic more often report allergies, especially food allergies?
- 2) Could this be proved by generally available objective immunologic measures?
- 3) Are there groups of hyperactive children which tend to have more allergies?
- 4) Which dimensions determine the HKS and is there a distinctive "allergy factor" among these dimensions?

Methods

The sample is described in Table 1. The children were examined by:

Psychiatric and Psychological Methods:

Psychiatric and psychologic examinations comprised psychiatric interview, neurological exami-

nation, EEG, parent questionnaires (Child Behavior Check List (CBCL) by Achenbach and Edelbrock (1983), the 10-Items-Scale by Conners (1973), a questionnaire for cerebral dysfunctions (Enzephalopathie-Fragebogen) by Meyer-Probst (1983)); a brief battery of psychological tests was carried out in order to give an impression of

- *intelligence* (Raven Coloured Progressive Matrices (Raven-CPM)),
- *attention* (digit symbol test (DST) of the revised Hamburg-Wechsler-Intelligence-Test for Children (WISC-R) or animal houses of the Hamburg-Wechsler-Intelligence-Test for Preschool Children) and
- *impulsivity* (Matching Familiar Figures Test (MFFT) by Kagan (1965)).

It should be noted that the DST and the MFFT do not only reflect attention and impulsivity but also short-term and working memory, perception of figures and of symbols etc. However, for this age group and for this purpose, it seemed to be the most effective and economic solution.

Using all the background information from these measures, a diagnosis of HKS was assigned by medical doctors in cooperation with a psychologist of the department. There were weekly conferences on psychiatric classification according to

Table 1. Description of the sample.

Place	Dept. of Child and Adolescent Psychiatry, University Clinic of Marburg	
Admission criteria	Suspected hyperkinetic syndrome (preliminary diagnosis) (successive referrals to the department) Age: 4-13 yrs IQ: > 70	
Total sample size	n = 122	
Diagnosis by child psychiatrist/psychologist of the department	<p><i>Hyperkinetic syndrome (HKS): n = 104</i></p> <ul style="list-style-type: none"> -children (only) with hyperactivity and attention deficit (ICD-9-Nr. 314.0): n = 34 -children with additional signs of developmental retardation (ICD-9-Nr. 314.1): n = 37 -children with additional conduct disorder (ICD-9-Nr. 314.2): n = 33 	<p><i>Children with other externalizing disorders (OED): n = 18</i></p> <ul style="list-style-type: none"> - conduct disorders (ICD-9-Nr. 312)
Age	Mean age: 8.6 yrs (SD = 2.1)	Mean age: 8.3 yrs (SD = 2.1)
Gender	Male:Female = 8.5:1 (93:11)	Male: Female = 8:1 (16:2)
Social classes:		
Upper class and upper middle class	n = 11 (10.5%)	n = 2 (11%)
Middle part of middle class and lower middle class	n = 25 (24%)	n = 4 (22%)
Lower classes	n = 68 (65%)	n = 12 (67%)

Table 2. Psychological tests and neurological "soft signs" in hyperkinetic children and children with other externalizing disorders.

	Children (only) with hyperactivity and attention deficit (ICD-9-Nr. 314.0) n = 34	Children with additional signs of developmental retardation (ICD-9-Nr. 314.1) n = 37	Children with additional conduct disorders (ICD-9-Nr. 314.2) n = 33	Children with other externalizing disorders (OED) n = 18
<i>Psychological tests (mean S.D.)</i>				
IQ (CPM- RAVEN)	m = 99.9 (SD = 15.3)	m = 91.9 (SD = 11.7)	m = 99.7 (SD = 15.8)	m = 94.3 (SD = 12.2)
MFFT (latency in sec)	m = 13.3 (SD = 11.6)	m = 8.9 (SD = 7.1) ¹	m = 14.3 (SD = 9.1) ¹	m = 9.3 (SD = 6.0)
MFFT (mistakes)	m = 14.5 (SD = 9.1) ³	m = 21.3 (SD = 10.7) ^{2,3}	m = 11.5 (SD = 7.6) ²	m = 15.2 (SD = 8.1)
Digital Symbol Test (HAWIK-R/ value point)	m = 8.4 (SD = 3.2)	m = 6.3 (SD = 3.0)	m = 8.1 (SD = 2.9)	m = 9.5 (SD = 3.9)
<i>Neurological "soft signs"</i>				
Deficits in func- tions of balance	3.0% (1/33)	2.9% (1/35)	0% (0/30)	0% (0/18)
Deficits in func- tions of coordination	6.1% (2/33)	5.7% (2/35)	3.3% (1/30)	0% (0/18)
Combined deficits	15.2% (5/33) ⁴	54.2% (19/35) ^{4,5}	23.3% (7/30)	11.1% (2/18) ⁵

¹ Median-2-Sample test: $Z = -2.084$, $p < 0.03$, ² Median-2-Sample test: $Z = -2.605$, $p < 0.009$, ³ Median-2-Sample test: $Z = -2.157$, $p < 0.03$, ⁴ Differences between 314.0 and 314.1: $\chi^2 = 11.39$, $p < 0.001$, ⁵ Differences between 314.1 and OED: $\chi^2 = 9.26$, $p < 0.002$

the ICD-9, so that doctors and psychologists were familiar with the ICD-9 diagnoses of HKS. The reliability should be comparable to that reported by Prendergast et al. (1988) for their research teams ($\kappa = 0.6$).

Pediatric Methods:

The pediatric examination comprised a pediatric interview with individual and family history of allergies, Immunglobulin E, and a skin prick test for 32 foods (immediate reaction). As no findings or hypotheses about specific immunologic measures for the hyperkinetic syndrome were reported so far, it was decided to apply these generally available immunologic measures. These objective measures mainly reflect IgE-mediated immune responses (immediate reactions on skin prick test). For delayed reactions to foods, no reliable objective measures could be found. Therefore, we looked for signs of such immunologic mechanisms by carefully taking allergy histories.

Eighteen of the 122 children had to be excluded because a hyperkinetic syndrome could not be confirmed; these children mainly had other exter-

nalizing psychiatric disorders. They served as a small control group as it was not possible for ethical reasons to examine healthy children with the invasive immunologic measures like IgE blood levels and skin prick tests on 32 foods. The general descriptive statistics are summarized in Table 1 and the results for the neurological examinations and psychological tests are contained in Table 2.

Results

Differences Between the Hyperkinetic Groups According to the ICD-9*

Parental questionnaires: Children with HKS with conduct disorder more often had pathological scores (above 90th percentile) for general psychopathology as compared with the other two groups of children with HKS (CBCL/general score: $\chi^2 = 4.0$; $DF = 1$; $p < 0.04$). They also had more internalizing symptoms (CBCL/internalizing scores: $\chi^2 = 5.42$; $DF = 1$; $p < 0.02$), but were similar regarding general externalizing behaviour disturbances. The scores for aggressiveness (Wilcoxon-2-

* By the International Classification of Diseases (9th revision), 3 groups of hyperkinetic children were clinically differentiated: Children (only) with hyperactivity and attention deficit (ICD-9-No. 314.0); Children with additional signs of developmental retardation (ICD-9-No. 314.1); Children with additional conduct disorder (ICD-9-No. 314.2).

samples Test: $p < 0.01$; $Z = 2.51$) and depressive symptoms (Wilcoxon-2-samples Test: $p < 0.001$; $Z = 3.23$) were significantly higher than in the other two groups with HKS. Thus, not only the conduct problems but also the emotional disturbances of the children with HKS with conduct disorders were perceived by the parents, and seem to be more important than in the other two groups of hyperkinetic children.

Immunologic measures (Table 3): In general, the frequency of allergic symptoms – by pediatric interview as well as by questionnaire (Item 2 of the CBCL) – was about 36% of children with HKS vs. 17% of children with other externalizing disorders (OED) which is comparable with the prevalence of 17.7% of children of the general population according to an epidemiological study in the same geographic area with the same questionnaire (Remschmidt & Walter, 1990). This is accordant with epidemiological studies of other areas of Ger-

many where prevalences of 10% to 20% among school children have been found (Bayrisches Gesundheitsministerium 1991, Hamburger Umweltbehörde 1991.). The group of children with HKS and no signs of additional disorders was reported to have more than twice the number of allergies compared to the children with OED (interview: $\chi^2 = 5.43$; $p < 0.05$; questionnaire (CBCL, Item 2): $\chi^2 = 3.95$; $p < 0.05$) and to the children with HKS with conduct disorders (interview: $\chi^2 = 4.95$; $p < 0.05$; questionnaire (CBCL, Item 2): $\chi^2 = 4.67$; $p < 0.05$). All types of allergies were more frequent but, possibly due to the small group sizes no significant differences between the groups with HKS and the group with OED emerged. The parents of children with HKS with developmental retardations also often reported allergic symptoms (positive history: 36.1% (13/36)). However, the IgE and the immediate response (mainly IgE-mediated) to the skin pricktest for

Table 3. History of allergy, skin prick test on 32 foods and IgE in hyperactive children (groups according to ICD-9) and children with other externalizing disorders.

	Children (only) with hyperactivity and attention deficit (ICD-9-Nr. 314.0)	Children with additional signs of developmental retardation (ICD-9-Nr. 314.1)	Children with additional conduct disorder (ICD-9-Nr. 314.2)	Children with other externalizing disorders (OED)
<i>Individual history</i>				
(by personal interview)				
inhalation allergy	21.9% (7/32)	16.7% (6/36)	6.7% (2/30)	11.1% (2/18)
food allergy	21.9% (7/32)	8.3% (3/36)	10.0% (3/30)	5.5% (1/18)
other allergies	18.8% (6/32)	13.9% (5/36)	10.0% (3/30)	5.5% (1/18)
general history of allergy	50.0% (16/32) ^{1,3}	36.1% (13/36)	23.3% (7/30) ¹	16.7% (3/18) ³
<i>Individual history</i>				
(by questionnaire)				
reported signs of "allergy" (CBCL-Item 2) ^a	46.7% (14/30)	37.1% (13/35)	19.2% (5/26) ²	17.7% (3/17) ⁴
<i>Skin prick test</i> (32 foods)				
positive immediate reaction	10.3% (3/29)	28.5% (8/28)	23.1% (6/26)	5.9% (1/17)
<i>IgE</i> (related to age ^b)				
% of children:				
1. below 5% value (low)	24% (6/25)	17.2% (5/29)	8.7% (2/23)	13.3% (2/15)
2. between 5% and 95% value (normal)	48% (12/25)	55.1% (16/29)	73.9% (17/23)	53.3% (8/15)
3. up to 50% above 95% value (high)	16% (4/25)	13.8% (4/29)	4.3% (1/23)	13.3% (2/15)
4. more than 50% above 95% value (very high)	12% (3/25)	13.8% (4/29)	13.0% (3/23)	20.0% (3/15)

¹Differences between 314.0 and 314.2: $\chi^2 = 4.95$; $DF = 1$; $p < 0.05$, ²Differences between 314.0 and 314.2: $\chi^2 = 4.67$; $DF = 1$; $p < 0.05$, ³Differences between 314.0 and OED: $\chi^2 = 5.43$; $DF = 1$; $p < 0.05$, ⁴Differences between 314.0 and OED: $\chi^2 = 3.95$; $DF = 1$; $p < 0.05$

^a CBCL = Child Behavior Check List (Achenbach & Edelbrock 1983), ^b absolute IgE serum concentrations are dependent on age; for comparison, the IgE concentrations of the children are transformed into 4 categories (low, normal, high, very high) which are related to values of the 5th and 95th percentile for each age group

Table 4. Dimensions of the Hyperkinetic Syndrome: Factor analysis (n = 61, age group: 6–11 yrs, Rotation method: VARIMAX).

Variables	Factors			h ²
	I	II	III	
Inhalation allergy (IH)	0.7496	-0.2005	0.2605	0.670
Mistakes in MFFT	-0.6780	-0.0680	0.5034 ¹	0.718
Latency in MFFT	0.5772	0.0983	-0.2670	0.414
Age	0.5748	0.0359	-0.3417 ¹	0.448
Inhalation allergy (FH)	0.4052	-0.0482	-0.0067	0.167
IQ (CPM-RAVEN)	0.3040 ¹	0.2789	-0.3100 ¹	0.303
Social status (Mother)	0.3486	0.1550	0.2364	0.202
Other allergies (IH)	0.1976	-0.0965	0.0821	0.055
Food allergy (FH)	-0.0499	0.0003	-0.0166	0.003
Externalizing score (CBCL)	0.1588	0.9704	0.1821	1.000
Internalizing score (CBCL)	-0.1404	0.6771	-0.2853	0.559
Sum score (CONNERS scale)	-0.1500	0.5200	-0.0328	0.293
Immunglobulin E	0.1115	-0.3405	0.2342	0.184
Other allergies (FH)	0.0428	0.2578	-0.0358	0.075
Neurological signs	-0.1329	-0.1666	0.6002	0.405
Digital Symbol Test (VP)	0.1734	0.1885	-0.4382	0.257
Sum score (EF)	0.0704	-0.0223	0.3717	0.144
Skin test on foods	0.0132	-0.1232	0.3466	0.135
Pathology of EEG	-0.0770	0.0605	0.2644	0.080
Allergy of foods (IH)	0.0144	-0.0086	0.1195	0.015
Social status (Father)	0.0477	0.1416	-0.1446	0.043
Square sum:	2.29	2.12	1.75	6.16
% of variance:	10.9	10.1	8.4	29.4

¹ Items, which, in spite of high loadings (> 0.3), had to be excluded as marking variables because the FÜRNTTRATT criteria ($a^2/h^2 > 0.5$) were not fulfilled.

IH = Individual history, FH = Family history, CBCL = Child Behavior Check List by Achenbach and Edelbrock (1983), EF = Questionnaire by Meyer-Probst (Cerebral dysfunction, 1983), MFFT = Matching Familiar Figures Test (Kagan, 1966), CPM-RAVEN = Coloured Progressive Matrices by Raven

foods did not show significant differences across the hyperkinetic groups; nor did the family history for allergies show any significant differences.

Factor Analysis

In order to examine whether immunologic variables are predictors of certain dimensions of the HKS, a factor analysis was carried out.

The scales of the CBCL were defined for children in the age groups of 4 to 5 years, 6 to 11 years and 12 to 16 years. Because of the sample size, only children aged 6 to 11 years (elementary school children) were selected for the factor analysis. For this group of hyperkinetic children, 21 main variables were examined (complete data were available for 61 hyperkinetic children):

1. age, 2. socio-economic status of the mother, 3. socio-economic status of the father, 4. degree of general neurological impairment*, 5. degree of general EEG pathology**, 6. individual history for food allergy, 7. individual history for inhalation allergy, 8. individual history for other allergies (contact allergy etc.), 9. family history for food allergy, 10. family history for inhalation allergy, 11. family history for other allergies (contact allergies etc.), 12. degree of reaction in skin prick test (32 native foods), 13. IgE blood levels (related to age), 14. externalizing score of the CBCL, 15. internalizing score of the CBCL, 16. raw sum score of the 10-Items scale by Conners, 17. sum score of the cerebral dysfunction questionnaire by Meyer-Probst, 18. IQ (CPM-Raven), 19. number of mistakes in the MFFT, 20. latency in the MFFT, 21. value points in the DST (WISC-R).

* Clinical ratings for neurological impairment: 0 = normal, 1 = "soft signs", no movement disorder, 2 = reflex anomalies, signs of movement disorder or motor abnormalities.

** Clinical ratings: 0 = normal for age, 1 = slight or questionable pathology or abnormal activity with no certain pathology, 2 = pathological background activity or epileptic activity.

A two-factor solution was not sufficient; on the other hand, a four-factor solution was less efficient than the 3-factor solution as, in the fourth factor, only one variable fulfilled the Fürntratt Criteria. In Table 2, the results are demonstrated after VARIMAX rotation:

Factor 1 was characterized socio-economic status of the mother and age. The loadings of a more reflective type of reaction in the MFFT (positive loading on latency, negative loading on mistakes) seem to be the result of age and social influences. The high loadings for individual and family history of inhalation allergies could, at least partly, be explained by their dependency on age, as the prevalence of inhalation allergies is known to be dependent on age. Thus, this factor seem not to reflect a distinct "allergy factor", but it could be interpreted as a sort of "stabilizing factor" with a "social class and age" dimension.

Factor 2 mainly contains a "psychopathological" dimension (higher values in the CBCL externalizing and internalizing scores as well as in the raw sum score of the 10-items scale by Conners) and a negative loading on IgE levels. This may, to some extent, reflect the accessory symptomatology of the HKS.

Factor 3 represents a "brain organic" dimension with significant loadings on neurological variables, on parameters for impulsive, inattentive behaviour and on the variable for the immediate reaction of the skin pricktest for foods.

In conclusion, with regard to the applied immunologic measures, we could not find a consistent and distinct immunologic dimension determining the HKS.

DISCUSSION

This clinical study confirms only to some extent previous clinical studies that had found a general association between the hyperkinetic syndrome and allergic reactions (Rapp, 1979; Tryphonas, 1979; Roth et al., 1991). In this study, the degree of this association was more moderate. The exploratory results show that there may be groups of hyperkinetic children with a higher prevalence of allergies. Especially, in hyperkinetic children without major additional psychopathology and in cases with cerebral dysfunction, an association of allergic symptoms was found. However, this higher prevalence of allergies in a certain clinical group of hy-

perkinetic children could be due to delayed non-IgE-mediated reactions as IgE serum concentrations and immediate reactions on the skin prick test being mainly mediated by IgE were not more often pathological. The applied objective immunologic measures do not show any significant correlation with certain psychological or neurological abnormalities in hyperkinetic children; nor could a distinctive "allergy factor" be found.

In contrast to previous pediatric studies and to studies on samples of the general population, it has to be emphasized that this study is based on a clinical child psychiatric population.

Mitchell et al. (1987) found no higher prevalence of allergic reactions in his sample of hyperkinetic children obtained by radio announcement. However, the purpose of this study was not to find out allergy reactions; thus, the methods were not specially selected for this subject.

In their longitudinal study of a large sample of the general population, McGee et al. (1993) could not show any correlation of allergies and attention deficit disorder-hyperactivity (ADDH) behaviours at the age of 9 and 13. This could be due to several methodological reasons. First, hyperactive behaviours were diagnosed by questionnaires and reports. So, the children were not psychologically examined by tests; parents and child were not personally interviewed by a child psychiatrist or psychologist. Further, the diagnosis of ADDH (according to DSM III-R) is based on a different diagnostic background and is known to be broader than the diagnosis of hyperkinetic syndrome (according to ICD-9) (Prendergast et al., 1988). It is also not clear to what extent children with hyperactivity and conduct disorders are included. In this group, the presented study did also not find a higher prevalence of allergies. For these reasons, a higher prevalence of allergies in a group of hyperkinetic children – as shown in the presented study – could have been missed. McGee et al. do also not clearly describe the way of selection of their sample. However, geographical aspects may be important for the prevalence of allergies and cultural as well as social aspects may influence the perception of hyperactivity and therefore the results of the applied questionnaires and reports.

The normal rate of allergies being found in hyperactive children with conduct disorders as well as in children with other externalizing disorders in this study has to be discussed further. These results are inconsistent with the hypothesis that, in general, parents of hyperkinetic children tend to make

responsible somatic, particularly allergic, complaints for the disturbed behaviours of their children. On the other hand, it could not be rejected that parents of the group of hyperkinetic children without conduct disorders, more often look for "somatic" explanations. However, it would have to be explained why parents of hyperkinetic children with conduct disorder do not so. Both hypotheses have to be the subject for further research. So far, this study cannot answer the question to which extent social or real immunologic phenomena are involved. But in contrast to pediatric studies, it can be suggested that the parents seeking for help at a department of child psychiatry come more because of behaviour problems and therefore do not so strongly tend to somatic explanations.

At last, it should be stated that in this study, the hyperkinetic children with conduct disorders also differed from other hyperkinetic children by a much higher psychopathology concerning some externalizing and particularly internalizing symptoms.

These results support the differentiation of the hyperkinetic conduct disorder and of the hyperkinetic disorder without conduct disorder according to the new ICD-10.

The main methodological problem in all studies is the lack of objective measures for delayed non-IgE-mediated immunologic responses. As far as the authors know, reliable measures being practicable for such studies are not yet available. A part of such delayed reactions may be explained by IgG4-mediated responses (El Rafei et al., 1989). But IgG4 serum concentrations are not changed in a specific matter so that either high or low concentrations are indicators for delayed reactions, e. g., on foods.

In any case, the basic methodological problems for the diagnoses "allergy" and "hyperkinetic syndrome" should be born in mind for further research. As there is a lack of objective results for delayed allergic reactions in hyperkinetic children, the results have to be based on subjective observations so far; the observation of certain allergic reactions may depend on the parents' perception and this perception may be influenced by the social class, the psychopathology of the family and the cultural background.

Similarly, hyperactivity is often overdiagnosed and mostly depends on the situation and the observing person. Moderate hyperactivity is managed and perceived in a different manner by par-

ents of different social classes. Therefore, questionnaires and reports seem to be not sufficient for the diagnosis of the HKS.

Conclusively, the results of this study and previous studies are still too preliminary to speculate about psychodynamic explanations. Also, it seems early to speak about a psychoimmunological or neurochemical model of the hyperkinetic syndrome as Marshall (1989) and Roth et al. (1991) have postulated. Finally, it is unclear whether a response to an oligoantigenic treatment (Egger et al., 1985) can be connected with the incidence of allergic symptoms. However, the reported results should encourage further research in this field.

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Résumé

La pertinence des allergies chez les enfants hyperkinétiques particulièrement and les échantillons cliniques a été récemment discutée. Le rôle des allergies a été examiné dans un échantillon clinique de 122 patients référés successivement et suspectés de syndrome hyperkinétiques (HKS). Les enfants ont été examinés sur le plan général psychiatrique et un neurologique (entretien personnel, questionnaire, examen neurologique, EEG, brèves batteries psychologiques) et avec des mesures immunologiques concentration sériques d'IgE, test cutané concernant 32 aliments (réaction immédiate) histoire des allergies. Selon ces examens 18 des 122 enfants ne remplissaient pas le diagnostic de syndrome hyperkinétique (ou autres troubles externalisés); ils ont servi comme petit groupe de contrôle les enfants sains ne pouvant pas être examinés pour des raisons éthiques (mesure immunologique invasive.)

L'histoire des allergies était plus souvent positive chez les enfants avec un syndrome hyperkinétique sans troubles associés (50%) et chez les enfants avec un syndrome hyperkinétique et un retard développemental (36%) par rapport aux enfants avec un syndrome hyperkinétique et des troubles du comportement (23%) et par rapport au groupe

de contrôle (17%). Les mesures immunologiques objectives qui concernent essentiellement les réactions IgE, n'étaient pas significativement différentes. Ces résultats sont discutés dans le contexte des réactions non IgE médiatisées et d'une possible influence psychosociale.

Entre les mesures neurologiques respiratoires, psychiatriques et les mesures immunologiques il n'y avait pas de corrélation significative. Dans une analyse factorielle trois dimensions principales ont été trouvées sur la base des mesures utilisées; aucune ne pouvait être interprétée comme une dimension immunologique (distinctive).

Zusammenfassung

Die Relevanz von Allergien bei hyperkinetischen Kindern, insbesondere in klinischen Stichproben, wird in letzter Zeit diskutiert. Der Stellenwert von Allergien wurde prospektiv in einer sukzessiv erhobenen klinischen Stichprobe von 122 Kindern mit Verdacht auf Hyperkinetisches Syndrom (HKS) untersucht. Die Kinder wurden allgemein psychiatrisch und neurologisch (Befragung, Fragebogenverfahren, klinisch-neurologische Untersuchung, EEG, kurze testpsychologische Batterie) sowie immunologisch (IgE, Hautpricktest auf Nahrungsmittel (Sofortreaktion), Allergieanamnese) untersucht. Hierbei konnte bei 18 der 122 Kinder die Diagnose HKS nicht gesichert werden (andere extraversive Störungen); diese dienten als kleine Kontrollgruppe, nachdem gesunde Kinder aus ethischen Gründen (invasive immunologische Untersuchungen) nicht untersucht werden konnten.

Die Allergieanamnese war bei Kindern mit HKS ohne relevante zusätzliche Störungen (50%) sowie bei Kindern mit HKS mit Entwicklungsrückständen (36%) vermehrt positiv im Vergleich zu den Kindern mit HKS und Störung des Sozialverhaltens (23%) bzw. der Kontrollgruppe (17%). Die objektiven immunologischen Parametern, mit denen im wesentlichen IgE-vermittelte Reaktionen erfaßt wurden, wiesen keine Unterschiede auf. Als Erklärung der Ergebnisse werden verzögerte, nicht-IgE-vermittelte Reaktionen sowie psychosoziale Einflüsse diskutiert. Zwischen den neurologischen und psychiatrischen sowie den immunologischen Parametern ergaben sich keine signifikanten Korrelationen. In einer Faktorenanalyse fanden sich auf der Basis der untersuchten Meßgrößen drei Hauptdimensionen, von denen

keine als "immunologische" Dimension eindeutig interpretiert werden konnte.

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