

Significant Correlations with Hyperkinesia in Children with Different Intelligence Levels

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The aim of this study is to differentiate on clinical, psychological, developmental and environmental dimensions between hyperkinetic syndrome in children with average intelligence (groupe I) and that in children with mild and moderate degrees of mental retardation (groupe II) in order to optimize management and evaluate prognosis.

This symptom, hyperkinesia, was more prevalent in boys than girls (10:1) in both groups. Significant correlations were found in the following: abnormal movements with group II ($P<0.01$). Concentration and attention deficit with group I. Conduct problems were prevalent in both groups. However, runaway reactions and destructiveness with group II ($P<0.01$), stealing with group I. Sleep disturbances were shared by both groups and depression with group I. Other significant correlations were presented in relation to age of onset, neurotic traits, associated organic symptoms, parental attitudes as well as a discussion concerning probable etiological factors in both groups.

(Egypt. J. Psychiat., 1992, 15: 81-88).

Introduction

Attention deficit hyperactivity disorder (ADHD) has been called many things hyperactive child syndrome, hyperkinesis minimal brain damage, minimal cerebral dysfunction and attention deficit disorder (Abdel Rahman 1987).

DSM-III (1980) distinguished between attention deficit with and without hyperactivity. That distinction has been abolished in the DSM-III-R (1987) which calls it attention - deficit hyperactivity disorder (ADHD), because almost all of these children are hyperactive. According to the DSM-III (1980), in severe and profound mental retardation there may be clinical features that are characteristic of attention deficit disorder. However, the additional diagnosis of attention deficit disorder would make clinical sense only if the

mental retardation was mild or moderate in severity.

Franklin (1992) believed that there are strategies for helping such children to get round their considerable internal difficulties and social handicap, but he thinks we need first to recognize both the generic and environmental effect which impinge upon them.

The relationship between I.Q. and ADHD was considered an important factor. Menkes (1967) considered that the best prognostic index for hyperactivity is the I.Q.

The aim of this work is to compare the different etiological variables and associates of hyperactivity disorder in a group of average intelligent children to another group of mentally retarded (mild and moderate) presented with the same problem, as an attempt to throw light about any possible help for diagnosis and management.

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Subjects and Method:

30 children (27 boys and 3 girls) with (ADHD) frequenting "Abou El Rich" pediatric hospital from January 1990 to November 1990, were studied. The assessment was done by two senior psychiatrists. The patients was divided into 2 groups. The first group consisted of 15 children with I.Q. above 85, the second group 15 children also with I.Q. below 70, ranged from (35-70). All children were subjected to

1- Full psychiatric, social, cultural, developmental and familial history.

2- The assessment of symptoms depending on the clinical criteria of DSM-III-R (1987) for diagnosis of (ADHD), in the form of special questionnaire with "yes" or "no" answer by (Sanaa Ahmed and Sanaa Sayed, 1992). Data was collected and analyzed statistically.

3- I.Q. was also done for all children. 85 or above was considered (average+) group [First group] with a mean 98 ± 14.4 . I.Q. below 70 ranged from (35-70) was considered (MR) group [Second group] with a mean 56 ± 11.3 .

Both groups were matched as regards age, socioeconomic standard. Mean age for (average+) group was $8.5 \pm$ and that for (M.R) group was 8.3 ± 1.2 . The duration of the disorder was 5 years ± 1.8 for first group and 5 years ± 1.6 for the second. The age of onset was 3.2 years ± 1.1 and 3.6 ± 1.2 for the first and second group respectively.

The children of first group were all in primary school with low achievement, while these of the second 9 of them were in primary school, 3 in the special educational school and 3 of them were not in school. There was no differences in both group regarding the ante-natal history, delivery, condition of the child at birth.

Results

Tables 1- 11

Discussion

Hyperactive children are frequently misunderstood. Because the way they react or behave in any given situation differs significantly from peers, other people observing them attribute the cause of their behaviour to factors which they have preconceived (Franklin, 1990). Many authors associated ADHD to many genetic and environmental factors, one of them is I Q., and because of the academic difficulties frequently met with, this group of children were mis-diagnosed and handled, that is the aim of this work, as trial to differentiate on a clinical, psychological, developmental and environmental

Table 1
Hyperactivity in Groups I and II

Hyperactivity	Group I		Group II		Z	P
	No	%	No	%		
Difficulty sitting still	15	100	15	100	-	
Run about or climbs	14	93.3	13	86.6	0.6	NS
Difficulty staying seated	13	86.6	15	100	1.5	NS
Restlessness, fidget	12	80	11	73.3	0.4	NS
Any abnormal movement	5	33.3	12	80	2.9	<0.001
Talkativeness	12	80	3	33.3	4.9	<0.001

Table 2
Concentration and Attention Deficit in Both Groups

Concentration and A.D	Group I		Group II		Z	P
	No	%	No	%		
Failure to finish things	15	100	10	66.6	2.7	<0.01
Difficulties in concentration	13	86.6	2	13.3	5.9	<0.001
Easy distractability	11	73.3	5	33.3	2.4	<0.05
Difficulty sitting in play activity	6	40	6	40	-	-

Table 3
Conduct Disorders in Both Groups

Conduct Disorder	Average +		M.R		Z	P
	No	%	No	%		
Hiding things	10	66.6	12	80	0.83	NS
Stealing	4	26.6	0	0	2.3	<0.05
runaway	2	13.3	9	60	3.0	<0.01
Fire selling	1	6.6	5	33.3	1.94	NS
trouble making	0	0	3	20	1.93	NS
continuous hying	4	26.6	2	13.3	0.92	NS
Easy provocation	9	60	6	40	1.1	NS
Cont. quarrels	9	60	11	73.3	0.7	NS
Assaulting others	5	33.3	5	33.3	-	-1
Destroying things	5	33.3	12	80	3.24	<0.01
Play dangerously	9	60	12	80	1.2	NS
Beating peers	10	66.6	2	13.3	4.9	<0.001
No conduct	5	33.3	3	20	0.64	NS

Table 4
Sleep Disorders in Both groups

Sleep disorder	Group I		Group II		Z	P
	No	%	No	%		
Restlessness in sleep	10	66.6	3	20	2.9	<0.01
Insomnia	11	73.3	12	80	0.44	N.S
Night mares	7	46.6	7	46.6	-	-
Night terrors	4	26.6	0	0	2.3	<0.05
Somnambulism	1	6.6	0	0	1.0	N.S

Table 5
Prevailing Mood of Both Groups

Prevailing mood	Group I		Group II		Z	P
	No	%	No	%		
Reacting to situation	9	16.0	9	6.0	-	-
Anxious	5	33.3	6	40	0.38	NS
Irritable	6	40	7	46.6	0.36	NS
Depressive mood	8	53.3	2	13.3	2.56	<0.05

Table 6
Manifestation of Hyperactivity During Infancy in Both Groups

Hyperactivity	Group I		Group II		Z	P
	No	%	No	%		
Uncomfortable Behaviour	12	80	4	26.6	3.5	<0.001
Kicking	13	86.6	5	33.3	3.6	<0.001
Restlessness	13	86.6	4	26.6	4.2	<0.001
Excessive wakefulness	14	93.3	3	20	6.0	<0.001
Excessive crying	14	93.3	2	13.3	7.3	<0.001
Poor feeding	9	60	8	53.3	0.37	NS
Difficulty to cuddle	11	73	7	46.6	1.6	NS

Table 7
Neurotic Traits in Both Groups

Neurotic traits	Group I		Group II		Z	P
	No	%	No	%		
Nail biting	10	66.6	12	80	0.8	NS
Thumb sucking	0	0	2	13.3	1.5	NS
Temper out burst	1	6.6	6	40	2.4	<0.01
Nocturnal enuresis	11	73.3	12	80	0.44	NS
Colicky abdominal pains	12	80	3	20	4.1	<0.001
Excessive thirst	12	80	2	13.3	9.4	<0.001

Table 8
Associated Physical Illness in Both Groups.

	Average & mild		severe		Z	P
	No	%	No	%		
Physical illness	10	66.6	9	60	0.37	NS
Surgical Interference	1	6.6	2	13.3	0.61	NS
History of head trauma	6	40	8	53.3	0.74	NS
Epilepsy	2	13.3	4	26.6	0.92	NS
Neurological deficit	1	6.6	3	20	1.94	NS

Table 9

Consanguinity and Similar History in the Families of Both Groups

	Average & mild		Severe		Z	P
	No	%	No	%		
Hist of hyperactivity	5	33.3	2	13.3	1.3	N.S
Hist of consanguinity	2	13.3	6	40	1.7	N.S
Hist of M.R.	1	6.6	1	6.6	-	

N.S.= Not sig $p < 0.05$

Table 10

Reaction of the Father Toward Child Behaviour in Both Groups

Reaction of Father	(Average+)		Severe		Z	P
	No	%	No	%		
According to situation	1	6.6	7	46.6	2.8	<0.01
Passive reaction	7	46.6	1	6.6	9.8	<0.01
Rejecting (Psychological)	0	0	1	6.6	1.0	NS
Punishing (Physical)	7	46.6	2	13.3	2.1	<0.05
Interfering only	0	0	4	26.6	2.3	<0.05

Table 11

Reaction of the Mothers Toward Child Behaviour

Reaction of Father	(Average+)		Severe		Z	P
	No	%	No	%		
According to situation	6	40	6	40	-	-
Passive reaction	2	13.3	0	0	1.5	NS
Rejecting (Psychological)	3	20	1	6.6	1.94	NS
Punishing (Physical)	1	6.6	1	6.6	-	-
Interfering	3	20	7	46.6	1.6	NS

background between hyperactivity in (average+) intelligent and in mentally retarded (mild and moderate forms) aiming for help in management and prognosis.

The result obtained from this study denoted that (ADHD) is more prevalent in boys than in girls in the ratio of 1:10, 2 of them in (average +) group and one in MR group. this results have been supported by many results. Quay (1986) described the ratios at least 6 times more frequent in boys than in girls; Abdel Rahman (1987) described it (1:5) - (1:9). Werry (1968) found it 1:9, the DSM-III (1980) described it as 1:10.

Different manifestations of hyperactivity was prevalent in both groups in high percentage, table (1) that is because hyperactivity is a cardinal symptom for the diagnosis. But abnormal movement was correlated with M.R. group at $p < 0.01$, as compared to 33.3% of (Average+) group.

The presence of abnormal movement was supported by Franklin (1988) who described hyperactive children as being clumsy, Jerky, showing tremors, and also we can observe that the nature of abnormal movements in (Average+) group were differed from that of MR group, being in the form of tremors and Jerky movements in the first group and hitting, spitting, biting in the second, which are known abnormal movements related to mental retardation. Talkativeness as a result was expected because most (MR) children have a speech disabilities which may prevent them from being talkative, although "over talkativeness" considered one of the main criteria for diagnosing (ADHD) (Quay 1986).

Concentration and attention deficit table (2) were significantly correlated with (Average+) group at $p < 0.01$, for failure to finish things, $p < 0.001$ for difficulties in concentration in tasks and $p < 0.05$, for easy distractability. Because hyperactive children are frequently described as having extremely short

attention - span, in term of their capacity to stay with one activity. they are easy distracted from tasks or errands by environmental stimuli (Werry 1967). On the other hand (mental retarded children may have a diminution of attention rather than distractability in addition to their astonishment when facing any new tasks which may give a false impression that they are concentrating; or it may be a true attempt, an extra effort or stereotypy and monotony for achieving some success.

One of the big problems associated with hyperactivity is that of conduct problems (table 3). Perhaps three quarters of the children diagnosed with (ADHD) are also diagnosed with conduct disorder (Quay 1986). The result of Quay was similar to ours. We found that 75% of our sample (in average+) group showed social beating peers (66.6) for each stealing was correlated only with (average+) group. This is because stealing need some intellectual ability for planning, which is lacking in (MR) group on the other hand runaway was correlated more with (MR) group, because mental retarded need careful observation and special care, which unfortunately are lacking in our culture for two main reasons. The first is that care was given by the parents to the more intelligent children, because they are more promising. The second one is referred to the absence of family planning which does not allow the parent to give any particular care to any of their children. Easy provocation and continuous quarrels were high in both groups ranged from, as explained by Franklin (1992) who stated that: when hyperactive child becomes frustrated or challenged he will become angry, very negativistic and will scream and be destructive easily. This can also explain the correlation between destroying things with (MR) group at $p < 0.01$, because (MR) group was more exposed to frustration. Sleep problems was present in different percentage as shown in table

(4) for both groups, specially insomnia (73% and 80%) respectively. But restlessness was correlated with (Average+) group at $p < 0.01$, this relationship has been discussed by many authors Franklin (1992) said that: one comment mistake is to associate sleeplessness with hyperactivity, these I believe are two quite separated conditions although both may exist in the same child but hyperactive children tend to be restless in their sleep. Activity monitors attached to sleeping hyperactive children reveal that they are more restless than normal children even when a sleep (Porrino et al 1983), this is an important observation because hyperactivity during sleep implies that the conspicuous attentional difficulties are secondary to a more basic physiological disturbance in inhibitory dysfunction.

It was expected that anxiety and irritability to be high in hyperactive children as shown in table (5) which ranged from (33.3% - 46.6%) in both groups. Many factors may be responsible for such result, some of them can be attributed to the child nature, and some other to the frustrated situation around him. But depression was found to be correlated to (Average+) group at $p < 0.05$. this results was supported by Barnes and Cloquhoun (1984) in their study of hyperactive child found that depressive symptoms more present in some of these children. Laufer and Denhoff (1957) attributed the increased correlation of hyperactivity with other emotional and behavioral symptoms reaction to the difficulties of hyperactive and learning disorders created for the hyperactive child.

The manifestation of hyperactivity during infancy (0-3) years as shown in table (5) were highly correlated with (Average +) group at $p < 0.001$ for uncomfortable behaviour, kicking, restlessness, excessive wakefulness and excessive crying. This means that the problem of hyperactivity was directed very early. This result was agreed with

that of Whalene and Henber (1980) who found that a big number of mothers of hyperactive children have found that the child was overactive in the womb. Franklin (1990) explained this result by that: the onset is very early in life, usually within the first year, and may even predate that, because the motor aspects of this are often complained about by the parents of these children, that they kick rigorously within the women and they are very uncomfortable children. This result can explain also the delayed appearance of hyperactivity in the group of (MR) whose suffered a delayed motor development and activity than the (Average+) group.

Nail biting and nocturnal enuresis were prevalent in both groups, table (7), which ranged from 66.6% - 80% while colicky abdominal pain and excessive thirst was highly correlated with (Average+) group at $p < 0.001$. This result was agreed with that of Barns and Colquehoun (1984) who discovered that excessive thirst was associated with the problem of hyperactivity. Franklin (1992) found that excessive thirst and colicky pain were present in his group of hyperactive children in addition to temper outburst, In our group temper outburst was correlated with (MR) group at $p < 0.01$.

Both groups (table 8) showed different percentage of physical illness, without any statistical differences between the two groups, although epilepsy and neurological deficit were higher in (MR) group.

Also table (9) showed that history of hyperactivity was higher in (Average+) group, (33.3%), while positive conanguinity was higher in (MR) group (40%). These results supported by some authors and disagreed with some others. This view was cleared by Werry (1968), who, after reviewing other literatures related to this aspect, concluded that hyperactivity can apparently occur in the absence of similar familial condition and

vice versa. However in their review Whalen and Henker (1980) refer to other studies that 20% of hyperactive children's parents would probably have been diagnosed themselves as hyperactive in their own childhood.

Reaction of parent toward the child behavior was significantly differed from both groups, specially the father reaction as shown in table (10). Passive reaction or physical punishing were significantly correlated to the father of (Average+) group. As if the father who represents the source of power and authority either does not permit any disturbances or destruction of family discipline so he resorts to physical punishment or neglect the situation as a whole by a passive way.

Both situation may increase the hyperactivity of the child. Whalen and Henker (1980) after reviewing many other studies suggested that there is an increased psychopathology in parents of hyperactive children. Fathers have an important role and in hyperactive families there is a greater use of physical mean for discipline. Or in the noninvolvement of the father in the children upbringing. Barkley (1982) added that parents tend to be less active when the child is hyperactive and it is as though the child is trying to stimulate the parent. on the other hand fathers of (MR) group as if they are more understanding the limited abilities of this poor children so they tried either to react exactly according to the size of the problem created by the child in 46.6% of parent. or they try to interfere in 26.6% of parent.

while the mothers reaction in both group where more or less the same and mainly depend upon the situation because Egyptian mothers are known to be kind permissive and over protective to their children.

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Correlations Significatives chez les Enfants Hyperactifs de Différents Niveaux d'Intelligence

Le but de cette étude est de distinguer selon divers critères cliniques, psychologiques, développementaux et environnementaux entre le syndrome d'hyperactivité chez des enfants d'intelligence moyenne (groupe I) et celui observé chez des enfants de différents degrés d'arriération mentale (groupe II) afin d'optimiser la prise en charge et d'éclairer le pronostique.

Nous avons trouvé que l'hyperactivité était plus prévalente chez les garçons que chez les filles (10:1) dans les deux groupes. Les corrélations suivantes ont été significatives: les mouvements anormaux avec le groupe II ($P < 0.01$). Le trouble de la concentration et de l'attention avec le groupe I. Les troubles de la conduite étaient élevés dans les deux groupes, cependant les fugues et la destruction des objets avec le groupe II ($P < 0.01$), le vole avec le groupe I. Les troubles du sommeil avec les deux groupes, la dépression avec le groupe I. D'autres corrélations significatives sont présentées concernant l'âge du début, les traits névrotiques, les symptômes organiques associés, l'attitude parentale ainsi qu'une discussion concernant l'étiologie probable dans les deux groupes.

مصاحبات فرط النشاط

فى الأطفال: فى مستويات الذكاء المختلفة

يهدف هذا البحث إلى التفريق بين مظاهر اضطراب فرط الحركة عند الأطفال نوى الذكاء المتوسط (المجموعة الأولى) وبين مثيلاتها فى الأطفال المتخلفين عقليا (المجموعة الثانية)، وذلك على كل من المستويات الإكلينيكي (طب نفسى)، والبيئى والنفسى. وهذا التحديد قد يعين فى انتقاء كيفية التعامل مع كل نوع فى مجال العلاج.

وقد تبين أن عرض فرط النشاط متواتر أكثر فى الأولاد عن البنات (بنسبة ٨٠: ١) فى كلا المجموعتين كذلك وجدت ارتباطات دالة على الوجه التالى: الحركات غير العادية أعلى فى المجموعة الثانية، واضطرابات التركيز والانتباه أعلى فى المجموعة الأولى، أما اضطرابات التعامل فقد وجدت زائدة فى المجموعتين مع تواتر تفاعل الهرب والتحطيم فى المجموعة الثانية، وتواتر السرقة فى المجموعة الأولى - كما أن اضطرابات النوم كانت مشتركة فى المجموعتين أما الاكتئاب فهو أعلى فى المجموعة الأولى.

وقد أظهر البحث أيضا اختلافات دالة بين المجموعتين فيما يتعلق بسن البداية، والسمات العصائية، والمصاحبات العضوية، ومواقف الوالدين، وكذلك تناول البحث فى المناقشة ما يتعلق باحتمالية ربط نسبي متبادل بين بعض هذه المتغيرات وبين طبيعة المرضى فى المجموعتين.