

Study of Some Perspective of Attention Deficit Hyperkinetic Disorder in Children

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ABSTRACT

Background: Attention-deficit/hyperactivity disorder (ADHD) is characterized by developmentally inappropriate inattentiveness, impulsivity, and hyperactivity, and are the most common and thoroughly researched neuropsychiatry disorder affecting children and adolescence. The diagnosis of ADHD requires a comprehensive clinical assessment including a detailed patient history, clinical interview and observation, and a thorough physical examination. **Objective:** Our study is a prospective study to analyze the socio-demographic data of children with the diagnosis of ADHD attending the O.P.C. of the department of psychiatry at Hamad General Hospital in Qatar. The comorbid psychiatric disorder associated with ADHD, also detecting effect of different treatment modalities on those patients. **Results:** 29.2% of patients have comorbid Autism, up to 17.6% for organic brain syndrome; oppositional defiant disorders and conduct disorder followed by depression and O.C.D (5.8%) of cases. **Conclusion:** Clinically, treatment with stimulants results in an immediate, often dramatic, improvement in the core symptoms of ADHD. We concluded that accurate diagnosis and optimal management of this disorder may be the keys to improving long term outcomes of youth with this disorder.

Key words: Attention-deficit/hyperactivity disorder, Autism, Organic brain syndrome, Qatar, Egypt

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INTRODUCTION

ADHD is a disorder typically presents itself during childhood and is characterized by a persistent pattern of inattention and/or hyperactivity as well as forgetfulness, poor impulse control or impulsivity and distractibility¹. Sometimes it is called executive function impairment, time blindness, problem in performance, disorder of self regulation or the unfocused mind in children and adult. It is usually called attention deficit hyperactive disorder in

DSM IV and hyperkinetic disorder in ICD 10 (WHO, 1993).

It is the most common and thoroughly researched neuropsychiatry disorder affecting children and adolescents. Individuals with ADHD are a heterogeneous group, displaying high variability in the frequency and pervasiveness of symptoms, as well as the degree of impairment resulting from these symptoms. This disorder is associated with significant impairment, including poor

academic outcome, comorbid psychiatric and developmental conditions, and patient with family stress. ADHD's prevalence worldwide is estimated to be a bit over 5%², 10% of males and only 4% of females have been diagnosed in U.S.³. Only 10% of cases diagnosed, 80% under diagnosed, 60% of cases in childhood persist to adult life, 80% of cases have co morbid psychotic disorders. ADHD is 4-9 times more common in boys than in girls⁴. Based on DSM IV criteria three types of ADHD are classified into: ADHD combined type, ADHD predominantly inattentive type and ADHD predominantly hyperactive impulsive type (1). Since ADHD is an in growing disorder world wide, so, in the department of Psychiatry in Qatar we wanted to draw the attention about the socio-demographic data (age, sex and nationality) of children, also we wanted to detect the comorbid disorder associated with ADHD and the effect of medications given.

SUBJECTS AND METHODS

It is a prospective study to analyze the socio-demographic data of children with the diagnosis of ADHD attending the O.P.C. of the department of psychiatry at Hamad General Hospital in Qatar from the period between December 2007 till the beginning of July 2008 and the effect of different treatment modalities on those patients also detecting the co morbid psychiatric disorder associated with ADHD. We accepted referral of those children from Primary Health Center, School Health, Pediatric department in HGH, private doctors and from Accident and Emergency. In this period 53 patients were examined and diagnosed as ADHD. According to the international classification of diseases⁵

diagnostic criteria (WHO, 1993), each patient was interviewed and evaluated by psychiatrist in one session at the out patient clinic. Also they were subjected to Intelligent Quotient assessment by the psychologist. Then we gave ACTeRS with a comprehensive rating scale to be filled by the parents and/or teacher before and after starting the pharmacological treatment and other behavioral modalities (as behavioral technique or psychotherapy), Arabic version of ACTeRS was provided to the patients (after getting approved of the translation from the research committee in Qatar). ACTeRS is a comprehensive rating scale which includes 24 items. Each item is rated on a five point scale. With response categories ranging from almost never to almost always the items fall into four factors: attention, hyperactivity, social skills and oppositional behavior⁶. The ACTeRS factors have high internal consistency and test retest reliability factor pure items and good interrater agreement. Only 48 candidates completed the ACTeRS before and after treatment and 6 of the patient finished the test but refused to finish the test after medication. Also we diagnosed co morbid Psychiatric co morbidity associated with ADHD according to DSM IV¹. All data are collected and analyzed using SPSS 15.0. Chi-square with continuity correction was used to analyze observed frequency or dichotomous data. Analysis of variance was used to test mean difference among continuous variables. Significant p values were set equal to or less than 0.05.

RESULT

The sample consists of 48 children with ADHD. Table (1) shows the demographic characteristics of the sample as 79.2% of cases are more than 7 years old and 81.3%

of cases are male. I.Q. score shows that 20.8% of cases have mental retardation and 2.1% of the cases have borderline I.Q. In the sample as a whole, above 1\2 (65.4%) of the cases have pure ADHD, the most prevalent comorbid diagnosis is Autism (10.4%) followed by oppositional deviant disorder (6.3%). More than half of the cases improved on stimulants drugs (54.2%) (table 1).

Table 1: Socio-demographic data of child with attention deficit hyperkinetic disorder

Variable	Number	%
AGE	Less than 7 y.	10
	More than 7 y.	38
SEX	Male	39
	female	9
Nationality	Qatari	8
	Non Qatari	40
I.Q.	Mental retardation	10
	Borderline	1
	average	37
		20.8
Comorbid disorder	Pure ADHD	32
	Organic brain disorder	3
	Autism	5
	Conduct	3
	Oppositional deviant	3
	O.C.D.	1
	depression	1
		66.5
6-Type of treatment	Stimulants	26
	Non stimulants	22
		54.2
		45.8

Table (2) lists the concurrent variable of ACTeRS profile before and after treatment. The hyperactivity variable is the most significant improved after treatment (47.9% of children has severe hyperactivity problems changed to 8.3%) followed by attention (68.8% of children had severe attention problems changed to 12.5%) and social skills problems (39.6% had severe social skills problems changed to 25.0%). No significant improvement is noticed in oppositional deviant disorder

Table (2) Patient ACTeRS Profile before and after treatment.

VARIABLE	Before TTT	After TTT
1- Attention		
Desirable direction	4.2%	20.8%
Problem direction	68.8%	12.5%
severe	20.8%	27.1%
moderate	6.3%	39.6%
mild		
2- Hyperactivity		
Desirable direction	10.4%	16.7%
Problem direction	47.9%	8.3%
severe	27.1%	39.6%
moderate	14.6%	35.4%
mild		
3- Social Skill		
Desirable direction	16.7%	29.2%
Problem direction	39.6%	25.0%
severe	20.8%	16.7%
moderate	22.9%	29.2%
mild		
4- Opposition		
Desirable direction	12.5%	14.6%
Problem direction	22.9%	8.3%
severe	39.6%	31.3%
moderate	25.0%	45.8%
mild		

\$= P value non significant, \$\$= P value significant, \$\$\$=P value highly significant. TTT= Treatment

Table (3) compares between mean of attention profiles improved with stimulant drugs more than non stimulant drugs in patients before and after treatment (33.12 ± 18.61 Vs 29.64 ± 22.97) (95% confidence interval is -15.82-8.60). The mean of hyperactivity variables is higher with stimulant drugs than non stimulant drugs (36.08 ± 20.11 Vs 25.27 ± 17.01). As regard the mean of social skills is also higher with stimulants drugs than non stimulants drugs (36.50 ± 22.67 Vs 21.91 ± 22.67). The mean of oppositional variables shows no big difference between the mean of children on stimulant drugs and children with non stimulants drugs (29.19 ± 3.22 Vs 24.95 ± 3.35)

Table 3: Compare between the mean of the patient profile before and after treatment with stimulants drugs and non-stimulants drugs

	Variable	No	Mean	ST.Deviation	95%conf. interval
1-Attention	before ttt	48	11.35	15.39	(-9.05 - 9.09)
	after ttt	48	31.52	20.57	
	stimulant	22	33.12	18.61	
	non stimulants	26	29.64	22.97	
2-Hyperactivity	before ttt	48	17.10	20.43	(-20.67 – 2.83)
	after ttt	48	31.12	19.34	
	stimulant	22	36.08	20.11	
	non stimulants	26	25.27	17.01	
3-Social skills	before ttt	48	20.90	20.55	(-22.71 – 0.61)
	after ttt	48	29.81	23.58	
	stimulant	22	36.50	22.62	
	non stimulants	26	21.91	22.67	
4-Oppositional	before ttt	48	23.94	17.57	(-11 -9.12)
	after ttt	48	27.25	16.06	
	stimulant	22	29.19	3.22	
	non stimulants	26	24.95	3.35	

DISCUSSION

The American Academy of Pediatrics (AAP) has recently released a "Clinical Practice Guideline" recommending an evaluation for ADHD in all children 6 to 12 years of ages who present with inattention, hyperactivity, impulsivity, academic underachievement, or behavioral problems⁷. The diagnosis of ADHD requires a comprehensive clinical assessment including a detailed patient history, clinical interview and observation, and a thorough physical examination. Ideally, the process requires several visits if done thoroughly, if limited to one visit, physicians should allot at least 1 hour to perform the initial assessment⁸. Child and adolescent patients may be capable of maintaining behavioral control in the office setting and may lack insight into the impairment resulting from their symptoms. The parent interview, therefore, is the crux of the assessment process⁹. The AAP guideline suggests rating scales as an option, cautioning clinicians not to validate or refute a diagnosis based solely on these instruments¹. ADHD-specific, rather than

broadband, scales are more useful in distinguishing between children with and without ADHD. The ADD-H Comprehensive Teacher Rating Scale (ACTeRS) is one of the most commonly used and the most validated scales, for that we choose it for diagnosis and follow up of our cases after 6 months of treatment with stimulants and non stimulants⁶.

Although the comorbid frequencies in this report do not reflect a naturalistic sample, these diagnostic patterns are quite similar to prior clinical studies reflecting diagnoses endorsed by both child and parent informants. This data set however includes the broadest age range and the most extensive description of concurrent comorbidity of any study which is based on summary data from both the parent and child regardless of the subject's age. Over 1\2 of cases (66.5%) had pure ADHD.

These finding are similar to those reported in the MTA study, based on parental DISC reports, in a comparable clinical cohort which reported a 31.8%, 6 month

prevalence rate of pure ADHD, although from a younger age (mean age 8.5 years, range 7.0 to 9.9) and mixed racial sample of only ADDC subjects¹⁰. The proportion of pure ADHD cases within the ADDC sample in this study was 33.5% (68/203). Our data does diverge from report in a general Swedish school age population that suggested pure ADHD was rare¹¹. This stands out as increased rates of comorbidity are expected in a clinical sample such as this. However, the Swedish group had a small sample of ADHD subjects, including children with various developmental disabilities who were excluded from study. A variety of other disorders can masquerade as ADHD or coexist the disorder, in our study up to 29.2% for Autism, up to 17.6% for organic brain syndrome; oppositional defiant disorders and conduct disorder followed by depression and O.C.D (5.8%) of cases. Our data does another diverge from other researches which reported that up to 50% for oppositional defiant disorder, 30% to 50% for conduct disorder, 15% to 20% for mood disorders, and 20% to 25% for anxiety disorders¹¹⁻¹². These different results may be due to culture different so the clinician should attempt to identify potential environmental causes of the symptoms suggestive of ADHD. Both abuse (e.g., physical, emotional, sexual) and family dysfunction can produce symptoms similar to those seen in true cases of ADHD. A diagnosis of ADHD should not be given if the patient's symptoms appear to be the result of environmental influences. However, the clinician must be cognizant of environmental influences that may affect the severity of symptoms exhibited in the child or adolescent with ADHD.

The first component of any treatment plan for ADHD should be dissemination of educational material to the patients and

family. Parents should be informed that ADHD is a neurobiological disorder without a definitive cause that is often, but not always, inherited. In addition, the family should be reassured that although there is no cure, effective treatments are available to ameliorate the symptoms associated with the disorder. Our study compare between treatment with stimulants and non stimulants drugs and the results indicates that children who was treated with stimulants drugs shows marked improvement in hyperactivity which is statistically highly significant follower by improvement in both attention and social skills which is statistically significant. Oppositional symptoms shows minimal improvement and statistically insignificant results. Our results are consistent with results from a recently published survey of pediatric prescribing practices indicate that stimulants are the most frequently prescribed psychotropic agents, with nearly 2 million office visits and 6 million drug mentions in 1995¹³. Pelham and colleagues, during a summer treatment program, performed a 6 week, double-blind, placebo-controlled, crossover study of the efficacy and time course of stimulants drugs shows that drugs were superior to placebo and produced improvements in academic productivity, negative behavior, and staff and parent behavior¹⁴. Clinically, treatment with a stimulant results in an immediate, often dramatic, improvement in the core symptoms of ADHD (inattention, hyperactivity, impulsivity). In addition to improvements in the core symptoms of ADHD, stimulant treatment may result in diminished physical and verbal aggression; improved social interactions with peers, teachers, and parents; enhanced academic productivity and accuracy; and better compliance.

LIMITATION

This clinical sample does not represent the general population of clinically referred ADHD children since the study required the participation of other psychiatric clinic in Qatar. The sample also excluded obvious active cases of both major depressive and bipolar disorders so it can not further elucidate characteristics of the Bipolar\ ADHD debate. Sample size is small and more researches are needed to help our results.

Areas of impairment that have not been shown to be studied during treatment with stimulant medications include reading skills, learning, long-term academic achievement, and antisocial behavior or arrest rate, so further researches is needed for detection of these impairment and if their any change after treatment with different modalities.

CONCLUSION

ADHD is a chronic, neurodevelopment disorder affecting children, adolescents. It is becoming increasingly evident in adults. Although not conclusively determined, it appears to be caused by a combination of neurobiological and genetic factors. The diagnosis is made on the basis of detailed patient history, with reports from both parents and teachers which is a necessary for a comprehensive evaluation. A variety of other disorders can coexist or masquerade as ADHD; physicians must consider the numerous potential differential diagnosis and co morbidities when performing the initial assessment of a patient with symptoms of ADHD. Stimulant medications, despite controversy in recent years, remain first-line therapy in the treatment of ADHD. Overdiagnosis and

inappropriate prescription of stimulants continue to be a concern; however, non-treatment of ADHD may be associated with low self-esteem, social and academic failure, as well as increased risk of later antisocial behavior and drug abuse. Accurate diagnosis and optimal management of this disorder may be the keys to improving long term outcomes of youth with this disorder.

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بعض التوقعات لمرض فرط الحركة وعجز الانتباه في الأطفال

إن اضطراب فرط الحركة وعجز الانتباه يتميز بنمو غير ملائم في التركيز والانفعال والحركة الزائدة وهو يعتبر من أكثر الأمراض العصبية والنفسية تواجداً وبحثاً التي تصيب الأطفال والمراهقين وأن تشخيص هذا الاضطراب يحتاج إلى قياس اكلينيكي متكامل يشمل أخذ تاريخ مرضي مفصل ومقابلة اكلينيكية وملاحظة وكشف سريري. وإن هذه الدراسة هي دراسة مستقبلية لتحليل البيانات الاجتماعية والديموجرافية للأطفال المصابين بهذا الاضطراب والذين يحضرون للعيادة الخارجية لقسم الطب النفسي في مستشفى حمد بدولة قطر وكذلك دراسة الاضطرابات المصاحبة لاضطراب فرط الحركة وعجز الانتباه. كما تكشف الدراسة عن تأثير العلاجات المختلفة على هؤلاء المرضى. وقد أظهرت النتائج أن 29% من المرضى يعانون من التوحد و 17% يعانون من إصابة عضوية بالمشخاض واضطراب العناد وسوء المسلك وأيضاً 5.8% يعانون من اضطراب الاكتئاب والوسواس القهري. وقد وجد إكلينيكي أن العلاج الدوائي بالمنبهات يؤدي إلى تحسن فوري وملحوظ في الأعراض المركزية لاضطراب فرط الحركة وعجز الانتباه ومن هنا نستطيع أن نستنتج أن التشخيص الدقيق والعلاج المثالي لهذا الاضطراب هي المفاتيح لتحسن النتائج طويلة المدى للشباب المصابين بهذا الاضطراب.