

Autism Among Children Attending Pediatric Psychiatric Department in Child's Central Teaching Hospital in Baghdad: a Descriptive Study

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ABSTRACT:

BACKGROUND:

Autism is a spectrum of neuropsychiatric disorders that affects children from all ethnic and socioeconomic backgrounds. The diagnosis is based on their developmental and medical history as well as observations of their social, communicative, and play behaviors that usually begin before age of three years.

OBJECTIVE:

A descriptive study of autism to describe the prevalence of autism among childhood psychiatric disorders, the age for diagnosis of autism, sex distribution, family history and the clinical features of autism.

PATIENTS AND METHODS:

A cross-sectional study included a sample of 208 children with psychiatric disorder, who were attending pediatric psychiatric department evaluated for the criteria of autism. Data collected were including (the age at the diagnosis, sex, family history and clinical characters included the main clinical features and other associated features of autism).

RESULTS:

Of the 208 patients registered psychiatric problem, 33(15.87%) met criteria for autism, the mean age for the diagnosis of autism was 5.45 years with the boys more predominant than girls. Three main clinical features of autism are communication abnormality, social abnormality and behavioral abnormality. The communication abnormality were the most commonest features. Other associated features included enuresis (the commonest), encopresis, sleep problems, over activity and anxiety. Macrocephaly and seizure are important clinical characters of autism presented in 12% and 9.1% respectively.

CONCLUSION:

Autism is not rare and autistic children represent a significant subgroup of children with serious psychiatric disturbance. Speech delay and abnormalities in language are the hallmark features of autistic disturbance.

KEY WORDS: Autism- Children- Pediatric psychiatric department.

INTRODUCTION:

Autism is a brain developmental disorder characterized by impaired social interaction and communication, and by restricted and repetitive behavior.^(1,2,3,4) These signs all begin before a child is three years old.^(1,2,3,4,5,6,7)

Autism spectrum disorders(ASD) also called pervasive developmental disorders" (PDD) refers to a group of disorders characterized by impairments in social interaction and verbal and nonverbal communication as well as repetitive and stereotyped

patterns of interests and behavior with varying degree of severity.^(1,2,3)

Epidemiology & Aetiology: Prevalence of autism is probably 1 per 10000 children. It's four time as common in boys as in girls.^(1,2,8) The cause of autism is unknown but suggest that both genetic influences and organic brain disorder have important role in the development of autism.^(1,9,10,11)

Clinical features: In international classification of diseases, tenth revision (ICD-10) three main clinical features are required to make the diagnosis of autism.

- 1-Impairments in social interaction
- 2-Impairments in communication
- 3-Restricted interests and repetitive behavior

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These clinical abnormalities are usually apparent before the age of three years. The diagnosis of autism required at least six symptoms total, including at least two symptoms of impairment in social interaction, at least one symptom of impairment in communication, and at least one symptom of restricted and repetitive behavior, the other two symptoms from either social, communication or behavioral abnormalities.^(1,6,12,13,14)

Prognosis:

Childhood autism is a chronic disability.^(2,15) About 10-20 percent of childhood autism begin to improve between the age of 4-6 years^(1,16) It is not known how often recovery happen.^(17,18) Seizure disorder observed in 25% of autistic children^(1,2,19,20) Pointers to better prognosis are communicative speech by the age of six years and higher IQ.^(1,2,21)

PATIENTS AND METHODS:

A cross-sectional study was carried out in the Psychiatric department of child's central teaching hospital in Baghdad city. A total of (208) children between the age of [1.5-16] years with the psychiatric disorder, who attended to pediatric psychiatry consultation clinic during the period of seven months between 1st of December 2008 to 30th of June 2009.

Among those all children with psychiatric disorder, autistic children identified and diagnosed in pediatric psychiatry consultation clinic by the pediatric psychiatrist consultant who used ICD-10 criteria to confirm the diagnosis.

Data were obtained from mothers, fathers or other members of autistic children including

1-Age at which the diagnosis of autistic children occurred.

2-Sex.

3-Family history of autism or other psychiatric disorders.

4-History of delay or abnormality of speech which include (total lack of development of spoken language, failure to initiate or sustain speech, repetitive use of words and lack of imagination play), abnormality of social interaction which include (lack of eye-to-eye gaze, facial expression, failure to develop peer relationships, lack of socio-emotional reciprocity as shown by an impaired response to other people's emotions and lack of spontaneous seeking to share enjoyment, interests with other people) and behavioral abnormality, whether he or she had stereotyped movement, obsessive sameness, restricted behavior and self-injury.

5-History of other associated features include seizure with (exclusion children who had other causes rather than autism for occurrence of seizure including those with a motor deficit, an associated etiological medical disorder, or a positive family history of epilepsy), enuresis (excluded children under age of five years), encopresis (excluded children under age of four years), over activity, sleep disturbance, anxiety and measurement of

head circumference of each autistic child using tape measure to detect associated macrocephaly.

Those children who had autism were sent for hearing assessment to avoid wrong diagnosis of autism among children who had deafness.

Statistical Analysis:

Statistical analysis was performed using statistical package for social sciences (SPSS version 16 computer software). Data were analysis using a descriptive study.

RESULTS:

Of the 208 children with psychological disorders, 33 (15.87%) met criteria for autism (figure 1). 28 of them were boys and 5 of them were girls, the boys more predominant than girls with Boy :Girl ratio= 5.6:1.

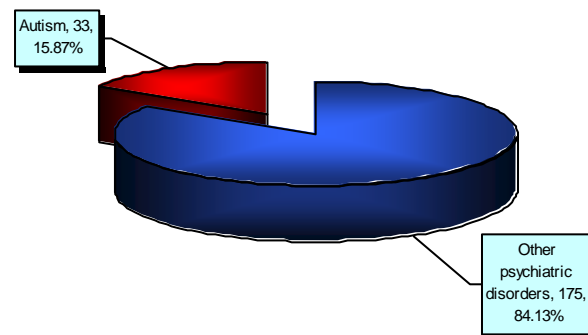


Figure 1: The prevalence of autism among psychiatric disorders.

AUTISM

The majority of the patients were between the ages of (3-7) years, the mean age of diagnosis of autism was 5.5 years (table 1).

Table 1: Age distribution at time of diagnosis.

Age (years)	No.	%
2-3	1	3.0
3-4	5	15.2
4-5	7	21.2
5-6	5	15.2
6-7	6	18.2
7-8	3	9.1
8-9	3	9.1
9-10	1	3.0
11	2	6.0
Total	33	100%
Mean \pm SD(Min-Max)	5.45 \pm 2.27 (2-11)	

Two of autistic children had family history of schizophrenia and another had family history of psychiatric disorders, one had family history of depression disorder. (Table 2).

Table 2: Autistic children with family history of autism and other psychiatric disorders .

	No.	%
Family history of autism Yes	3	9.1
No	30	90.9
Family history of other psychiatric disorders Yes	2	6.1
No	31	93.9

Of the 33 patients identified as having autism, 29 (87.9%) had communication abnormality (figure 2) .

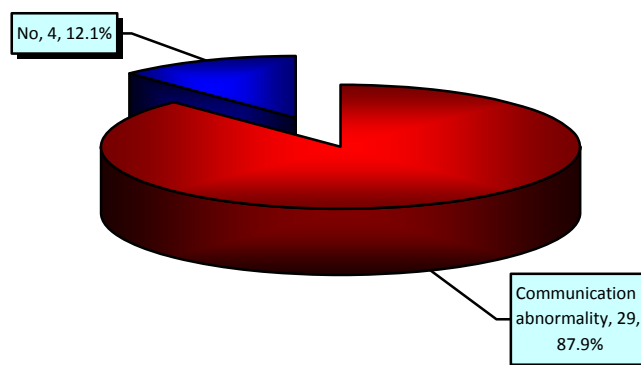


Figure 2: The Communication abnormality.

Communication abnormality represented the most common presenting symptom of autism and majority of them had failure in imagination play and complete rather than partial lack of the speech. (table 3).

Table 3: Variable symptoms of communication abnormality.*

Communication abnormality(n=29)	No.	%
Total lack development of speech	13	44.8
Repeated words (echolalia)	6	20.7
Failure in initiation or sustain speech	10	34.5
Failure in imagination play	25	86.2

* Two or more symptoms of communication abnormality may present in one patient.

Of the 33 patients with autism, 27(81.8%) had social abnormality (figure 3)

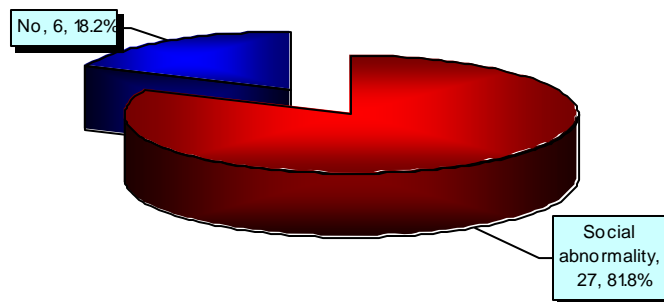


Figure 3: The Social abnormality.

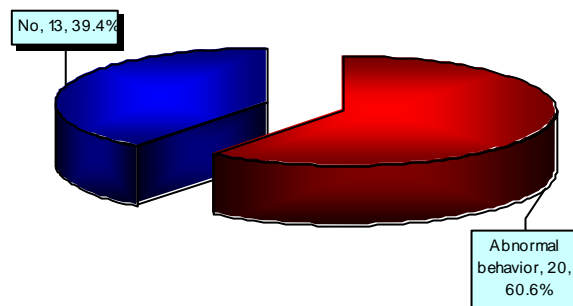
Autistic aloneness is the most common presenting symptoms of social abnormality (table 4).

Table 4: Variable symptoms of social abnormality.*

Social abnormality(n=27)	No.	%
Gaze avoidance	24	88.9
Autistic aloneness	26	96.3
Lack socio-emotional response	20	74.1
Lack of seeking to share enjoyment or interest	22	81.5

*Two or more symptoms of social abnormality may present in one patient.

The results showed that twenty (60.6%) of 33 autistic children had variable abnormal behavior. (Figure 4)



Stereotyped movement was the commonest behavioral abnormality of autistic children. (Table 5)

Table 5: Variable abnormal behavior *

Abnormal behavior (n=20)	No.	%
Stereotyped movement	17	85.0
Obsessive sameness	13	65.0
Restricted behavior	11	55.0
Self-injury	6	30.0

*Two or more symptoms of abnormal behavior may present in one patient

Table 6: Other presenting features of autism in order of frequency.

Other features	No.	%
*Enuresis (wet themselves)	13	65
*Encopresis (soil themselves)	7	25.9
Sleep problems	7	21.2
Over activity	6	18.2
Macrocephaly	4	12
Seizure	3	9.1
Anxiety	2	6.1

*Of total 20 autistic children who are above age of 5 years

*Of total 27 autistic children who are above age of 4 years

DISCUSSION:

A cross-sectional study showed about (15.87%) of a sample of 208 children with psychiatric disorders who were attended to the Psychiatric department met criteria of autism.

Sverd et al⁽²²⁾ found the prevalence of autism among psychiatric disorders was 14%. This finding supports the view that autism is not rare and may affect a significant proportion of children with serious psychiatric disturbance.

In general the reported cases of autism increased dramatically, this increment is largely attributed to changes in diagnostic criteria of autism, referral patterns, availability of services, age at diagnosis, and public awareness.⁽²³⁾

It showed that delay in diagnosis of autism, although the symptoms of autism began early in childhood, they are sometimes missed and lead to the delay in diagnosis years later. Shattuck et al⁽²⁴⁾ found a delay in the diagnosis of autism and average age of formal autism diagnosis was 5.7 years. Mandell et al⁽²⁵⁾ reported that the average age of autism was 3.1 years. Levy et al⁽²⁶⁾ suggests that a delay in the age at which children with autism received a diagnosis may be attributed to many factors, important one is specialist referrals, especially in rural settings where referrals may not be readily available. Other factor is clinical symptoms where autistic children with some symptoms like severe language deficits, hand flapping and sustained odd play received a diagnosis earlier.

Boys were at higher risk for autism than girls and approximately the same result reported by Newschaffer et al⁽⁸⁾ who found that sex ratio was more than 5.5:1 ,while others like Filipek et al⁽²⁷⁾ found sex ratio was 4:1.

Shao et al⁽²⁸⁾ and Liu et al⁽²⁹⁾ suggested that autism is an X-linked disorder, this may explain male predominant of autism, but others like Hallmayer et al⁽³⁰⁾ found cases of male-to-male transmission of autism in multiplex families, however, rule out X-linkage as the predominant mode of inheritance in these families.

This study showed that three autistic children had family history of autism, this may explain the genetic role for autism. Many other studies suggest that autism have strong genetic base , studies done by Gillberg.⁽³¹⁾ Schroer et al⁽³²⁾ and Cook et al⁽³³⁾ reported that cytogenetic abnormalities found at the 15q11-q13 locus are most frequently found in patients with autism. Folstein⁽³⁴⁾ reported that family members of individuals with autism have higher rates of communication and social difficulties than control subjects.

The current study showed that the communication abnormality was the most common presenting symptom of autism which approximately similar to results reported by Sverd et al⁽²²⁾ who showed abnormalities in language are the hallmark features of autistic disturbance, presented in 85% of autistic children, social abnormality presented in 70% of them and behavioral abnormality in 40% of autistic

children. Noens et al⁽³⁵⁾ show that about a third to a half of individuals with autism do not develop enough natural speech.

It was found that other associated clinical features of autism include enuresis, encopresis, over activity and anxiety presented in variable percentage among children with autism as reported by others.⁽¹⁾

Sleep problems presented in about 21% of children with autism, while Richdale et al⁽³⁶⁾ reported that about two-thirds of individuals with autism are affected by sleep problems.

The current study showed that seizure was found in 9% of children with autism (exclusion children who had other causes for occurrence of seizure) Pavone et al⁽³⁷⁾ found the prevalence of seizures is only 6% to 8% in children with autism after excluding other factors that cause seizures, while Rogers.(2005)⁽²⁰⁾ reported that 25% of autistic children develop seizure about the time of adolescence. This is variation in risk of epilepsy among autistic children may be related to the age because the onset of epilepsy in children with autism has 2 peaks: one before 5 years of age and another in adolescence.⁽³⁸⁾ Mechanism for epilepsy in autism may be explain by abnormal formation of synapses that occur in the autism where disrupted synaptic development may also contributed to epilepsy, which may explain why the two conditions are associated.⁽³⁹⁾

This study found 12% of children with autism had macrocephaly. Bertrand. et al⁽⁴⁰⁾ found 9.1% of children with autism had macrocephaly. Also reported that increased head circumference has been shown to be a common physical finding in children with autism, and 20% to 30% have macrocephaly.^(41,42) Others reported that increased blood concentrations of brain-derived neurotrophic factor detected in newborn infants who are later diagnosed with autism. This finding, if replicated, may have implications regarding the mechanism of early brain overgrowth.⁽⁴³⁾

CONCLUSION:

Autism is not rare and autistic children represent a significant subgroup of children with serious psychiatric disturbance and they have delay in the age of diagnosis. Speech delay and abnormalities in language and communication are the hallmark features of autistic disturbance.

Recommendations

Educate the people about psychiatric illnesses and encourage them for seeking advice when observed their children have abnormal behavior.

Pediatricians play an important role in early recognition of autism, they should have a strategy for assessing and carefully examine the patients who

come with language disorders, hearing problems or mentally retarded to differentiate them from cases of autism and encourage specialist referral for the patients where early recognition of autistic children and referral them is important for both family and patient to provide appropriate interventions and supports to minimize stress and behavioral disturbance.

REFERENCES:

1. Gelder M, Harrison P, Cowen P. Child Psychiatry In: Shorter Oxford Textbook of Psychiatry. 5th edition. Oxford University Press, New York; 2007;24:671-74.
2. Volkmar RF, Kiln A. Autism and Pervasive developmental disorders In: New Oxford Textbook of Psychiatry. 6th edition. University Press, 2006; 9.2.2:1723-27.
3. Sverd J: Psychiatric disorders in individuals with pervasive developmental disorder. Journal of Psychiatric Practice.2003; 9:111–27.
4. Bennetto L, Rogers SJ. Autism Spectrum Disorders In: Jacobson JL, Jacobson AM. Psychiatric Secrets. 2nd edition. Philadelphia; 2001;55:295-96.
5. American Psychiatric Association."Diagnostic criteria for 299.00 Autistic Disorder".Diagnostic and Statistical Manual of Mental Disorders (4th, text revision (DSM-IV-TR) ed.). 2000. ISBN 0890420254.
6. Goddard N.Child and Adolescent Psychiatry. In: Wright P,Stern J, Phelan M. Core Psychiatry. Philadelphia, W.B Saunders; 2000;11:173-75.
7. Shah PE, Dalton R, Boris NW. Pervasive Developmental Disorders and Childhood Psychosis. In: Behrman RE, Kliegman RM, Jenson HB, ed. NELSON textbook of Pediatric.18th edition. Philadelphia, WB Saunders; 2007;29:133.
8. Newschaffer CJ, Croen LA, Daniels J et al. "The epidemiology of autism spectrum disorders".Annu Rev Public Health. 2007;28: 235–58. doi:10.1146/annurev.publhealth.28.021406.144007. PMID 17367287.
9. Abrahams BS, Geschwind DH ."Advances in autism genetics: on the threshold of a new neurobiology".Nat Rev Genet.2008; 9 (5): 341–55. doi:10.1038/nrg2346. PMID 18414403.
10. Freitag CM . "The genetics of autistic disorders and its clinical relevance: a review of the literature".Mol Psychiatry.2007;12: 2–22. doi:10.1038/sj.mp.4001896. PMID 17033636.

11. Gerber JS, Offit PA . "Vaccines and autism: a tale of shifting hypotheses". *Clin Infect Dis.*2009;48:456–61. doi:10.1086/596476. PMID 19128068. <http://www.journals.uchicago.edu/doi/full/10.1086/596476>. Lay summary – *IDS*A (2009-01-30).
12. Müller RA . "The study of autism as a distributed disorder". *Ment Retard Dev Disabil Res Rev* . 2007;13 : 85–95. doi:10.1002/mrdd.20141. PMID 17326118.
13. London E . "The role of the neurobiologist in redefining the diagnosis of autism". *Brain Pathol.* 2007; 17 : 408–11, 2007. doi:10.1111/j.1750-3639.2007.00103.x. PMID 17919126.
14. World Health Organization . "F84. Pervasive developmental disorders". International Statistical Classification of Diseases and Related Health Problems (10th (ICD-10) ed). 2006.
15. Myers SM, Johnson CP, Council on Children with Disabilities. "Management of children with autism spectrum disorders". *Pediatrics.*.. doi:10.1542/peds.2007-2362. PMID 17967921,2007; 120:1162–82.
16. Helt M, Kelley E, Kinsbourne M *et al.*. "Can children with autism recover? if so, how?". *Neuropsychol Rev.*.. doi:10.1007/s11065-008-9075-9. PMID 19009353. 2008; 18: 339–66.
17. Rogers SJ, Vismara LA . "Evidence-based comprehensive treatments for early autism". *J Clin Child Adolesc Psychol.* doi:10.1080/15374410701817808. PMID 18444052. . 2008; 37: 8–38.
18. Burgess AF, Gutstein SE . "Quality of life for people with autism: raising the standard for evaluating successful outcomes". *Child Adolesc Ment Health.*.. doi:10.1111/j.1475-3588.2006.00432.x. 2007;12:80–6.
19. Pickett E, Pullara O, O'Grady J, Gordon B . "Speech acquisition in older nonverbal individuals with autism: a review of features, methods, and prognosis". *Cogn Behav Neurol.*doi:10.1097/WNN.0b013e318190d185 (inactive 2009-04-21). PMID 19372766. 2009;22:1–21.
20. Rogers SJ, Ozonoff S. "Annotation: what do we know about sensory dysfunction in autism? A critical review of the empirical evidence". *J Child Psychol Psychiatry.* doi:10.1111/j.1469-7610.2005.01431.x. PMID 16313426. 2005;46:1255–68.
21. Tidmarsh L, Volkmar FR . "Diagnosis and epidemiology of autism spectrum disorders". *Can J Psychiatry.* 2003;48:517–25. PMID 14574827.<http://ww1.cpa-apc.org:8080/Publications/Archives/CJP/2003/september/tidmarsh.asp>.
22. Sverd J, Dubey DR, Schweitzer R, et al. Pervasive Developmental Disorders Among Children and Adolescents Attending Psychiatric Day Treatment. *Psychiatr Serv.*2003; 54:1519-25.
23. Fombonne E. "Epidemiology of pervasive developmental disorders". *Pediatr Res.*2009; doi:10.1203/PDR.0b013e31819e7203 (inactive 2009-03-27). PMID 19218885.
24. Shattuck PT, Durkin M, Maenner M *et al.* "Timing of identification among children with an autism spectrum disorder: findings from a population-based surveillance study". *J Am Acad Child Adolesc Psychiatry.* doi:10.1097/CHI.0b013e31819b3848 (inactive 2009-03-27). PMID 19318992. 2009;48:474–83.
25. Mandell DS, Novak MM, Zubritsky CD, et al. Factors Associated With Age of Diagnosis Among Children With Autism Spectrum Disorders. Published 2005;116:1480-86.
26. Levy SE, Mandell DS, Merhar S, Ittenbach RF, Pinto-Martin JA. Use of complementary and alternative medicine among children recently diagnosed with autistic spectrum disorder. *J Dev Behav Pediatr.* 2003;24 :418 –23.
27. Filipek PA, Accardo PJ, Baranek GT, The screening and diagnosis of autism spectrum disorders. *J Autism Dev Disord.* 1999;29:437-81.
28. Shao Y, Wolpert CM, Raiford KL, et al. Genomic screen and follow-up analysis for autistic disorder. *Am J Med Genet.* 2002;114:99 –105.
29. Liu J, Nyholt DR, Magnussen P, et al. A genomewide screen for autism susceptibility loci. *Am J Hum Genet.* 2001;69 :327 –40.
30. Hallmayer J, Spiker D, Lotspeich L, et al. Male-to-male transmission in extended pedigrees with multiple cases of autism. *Am J Med Genet.* 1996;67 :13 –18.
31. Gillberg C. Chromosomal disorders and autism. *J Autism Dev Disord.* 1998;28 :415 –25.
32. Schroer RJ, Phelan MC, Michaelis RC, et al. Autism and maternally derived aberrations of chromosome 15q. *Am J Med Genet.* 1998;76:327 –36.

33. Cook EH Jr, Courchesne RY, Cox NJ, et al. Linkage-disequilibrium mapping of autistic disorder, with 15q11-13 markers. *Am J Hum Genet.* 1998;62 :1077–83.
34. Folstein SE, Mankoski RE. Chromosome 7q: where autism meets language disorder? *Am J Hum Genet.* 2000;67:278–81.
35. Noens I, van Berckelaer-Onnes I, Verpoorten R, van Duijn G. "The ComFor: an instrument for the indication of augmentative communication in people with autism and intellectual disability". *J Intellect Disabil Res.* doi:10.1111/j.1365-2788.2006.00807.x. PMID 16901289. 2006; 50: 621–32.
36. Richdale AL, Schreck KA . "Sleep problems in autism spectrum disorders: prevalence, nature, & possible biopsychosocial aetiologies". *Sleep Med Rev.* 2009 doi:10.1016/j.smrv.2009.02.003. PMID 19398354
37. Pavone P, Incorpora G, Fiumara A, Parano E, Trifiletti RR, Ruggieri M. Epilepsy is not a prominent feature of primary autism. *Neuropediatrics.* 2004;35:207–10.
38. Levisohn PM. "The autism–epilepsy connection". *Epilepsia* 48 (Suppl 9). PMID 18047599. 2007:33–5.
39. Tuchman R, Moshé SL, Rapin I . "Convulsing toward the pathophysiology of autism". *Brain Dev* . doi:10.1016/j.braindev.2008.09.009. PMID 19006654,2009; 31: 95– 103.
40. Bertrand J, Mars A, Boyle c, et al. Prevalence of Autism in a United States Population: The Brick Township, New Jersey, Investigation. *PEDIATRICS.* 2001; 108 : 1155-61.
41. McCaffery P, Deutsch CK. Macrocephaly and the control of brain growth in autistic disorders. *Prog Neurobiol.* 2005;77:38–56.
42. Nelson KB, Nelson PG. Size of the head and brain in autism: clue to underlying biologic mechanisms? In: Bauman ML, Kemper TL, eds. *The Neurobiology of Autism.* 2nd ed. Baltimore, MD: Johns Hopkins University Press. 2005:23–33 .
43. Nelson KB, Grether JK, Croen LA, et al. Neuropeptides and neurotrophins in neonatal blood of children with autism or mental retardation. *Ann Neurol.* 2001;49:597–606.