



Very early signs of autism: Recent research

Dr Avril Brereton

Symptoms of Autism Spectrum Disorders begin to manifest during the first two years of life; however, there has been limited evidence regarding type and timing of symptom onset. Past research, often retrospective parent interviews and analysis of home movies has confirmed early developmental differences in infants who went on to have a diagnosis of autism. These differences have included children failing to adopt anticipatory postures such as reaching out to be picked up, less visual attention to social stimuli, less smiling in response to others, less vocalization and less object exploration. Other studies have found that parents were also concerned about an unusual rate of progress in their children such as delays in reaching developmental milestones, an apparent slowing of development such as first words not following babbling and loss of previously acquired skills. Regression has been reported in various studies in 20-40% of cases (words, vocalization, non-verbal communication skills, social dyadic interaction skills, imitation, pretend play (Kobayashi & Muruta 1998; Tuchman & Rapin, 1997).

Recently, *The Journal of Autism and Developmental Disorders* dedicated an entire volume to the topic of early signs of autism (Vol. 37, 2007). Fourteen research papers are included and are introduced by an editorial “The very early autism phenotype” (Yirmiya and Ozonoff). This fact sheet presents a brief summary of this research and some other recent research, but I urge you to read the papers cited for a fuller understanding of this topic.

There is interest in the antecedents and very early signs of ASDs. This has been investigated through retrospective and prospective studies that have included children diagnosed with an ASD and their younger siblings who went on to be diagnosed with an ASD. Issues investigated include:

- ⇒ onset and regression,
- ⇒ the age of diagnosis, for example the earliest age versus optimal age
- ⇒ the implications for identification, e.g. labelling and referral for intervention.

An important reported finding is that early differences in joint attention, shared affect, verbal communication and, in some studies, repetitive behaviours, are common in infants and toddlers later diagnosed with autism. Researchers investigating the developmental trajectories of siblings who later develop autism, found that these children manifest risk signs related to communication, social behaviour and perhaps repetitive and stereotyped behaviours as early as 12 -14 months of age.

Developmental milestones and trajectories of young siblings of children with an ASD and their association with the broader autism phenotype (BAP) have also been investigated. Younger siblings of children with an ASD who did not meet criteria for an ASD were the subjects of studies investigating the potential infant characteristics of the broader autism phenotype (BAP). This term is used to describe subsyndromal differences qualitatively similar to but milder than the features of autism – social engagement and reciprocity, language and communication, repetitive behaviour. This research may be important for future genetic studies because autism is thought to have a multifactorial, polygenic aetiology – multiple genes may confer susceptibility to different traits (Yirmiya and Ozonoff, 2007). It was found that younger siblings of children with autism are at risk of multiple adverse developmental outcomes. The implication of this finding is that siblings of children with autism are at risk and their development should be carefully monitored.

When do parent first notice problems?

Research into this question has been previously reported. Howlin & Ashgharian, (1999) found that parents of children with autism often reported difficulties or delays in their child's development before two years of age, yet diagnosis at that stage was often not made until a child was about four years old or older. In that study concerns about language development were the most common concern that made parents worried and seek help. In a later study, DeGiacomo & Fombonne, (1998) found that approximately 30% of parents noticed problems prior to the first birthday and 80% by the age of 2-years. More recently, these findings have been supported by Chawarska et al. (2007) who found that parents of children diagnosed with either Autism or PDD-NOS reported, on average, first recognition of developmental problems at about 14-15 months. Difficulties with language development and social relatedness were most common. Chawarska et al, also found that parents of children diagnosed with autism had more early medical problems and were more likely to report loss of skills than children diagnosed with PDD-NOS. In the children with PDD-NOS, parents reported more non-specific problems (sleeping, eating difficulties) than children diagnosed with autism. Unusual interests and stereotyped behaviours rarely triggered parental concerns, most likely due to their relatively mild manifestations in infancy or a later onset (Chawarska et al., 2007).

New tools for the very early identification of autism

New tools to help with early identification of autism are currently being developed. They include the development of a new instrument; the First Year Inventory (Reznick et al., 2007) designed to assess risk for an ASD among 12 month infants. A more recent paper on the development of the Autism Observation Scale for Infants (AOSI) (Bryson et al., 2008) holds promise for identifying autism from as early as 6 months of age. The purpose of the AOSI is to detect and monitor early signs of autism as they emerge in high-risk infants (all with an older sibling with autism) 6-18 months of age. Its use as an early screen is not yet established and this work is part of an ongoing, large prospective study of infant siblings of children with autism.

What early signs are researchers looking for?

The AOSI is observing the following behaviours in infants at 6, 12 and 18 months:

- Visual tracking
- Disengagement of attention
- Orientation to name
- Differential response to facial emotion
- Anticipatory social
- Social babbling
- Eye contact
- Reciprocal social
- Coordination of eye gaze and action
- Behavioural
- Cuddliness
- Soothability
- Social interest and shared affect
- Motor control
- Atypical motor behaviour
- Atypical sensory behaviour

(Bryson et al., 2008 JADD, 38, 731-738)

Clinical implications and challenges

In 2005, Volkmar et al. discussed the importance of developing better screening methods and noted that prospective studies of high-risk populations (e.g. siblings of children with ASDs) would help refine current theories of both the psychological and neurobiological basis of autism and address issues of the broader spectrum of autism-related disorders as well.

“The increasing numbers of infants and very young children identified as at risk will present important new challenges for service delivery and research on early intervention.” (p. 330).

Current research is now sending clinicians a consistent message: parents recognise developmental concerns and signs of autism in their children *early*. Recently, McConkey et al. (2008) discussed some clinical implications of their finding that mothers recognise early features of autism by 18 months of age. They listed “health visitors and child care personnel” however the recommendations are pertinent for all those professionals working with young children who should:

- Be knowledgeable about the early signs of ASDs
- Be knowledgeable about the importance of early intervention and strategies that can be put in place early to help promote development in children and support for families
- Be knowledgeable about how to discuss developmental concerns and share knowledge with parents.

References

- Bryson et al., (2008) Autism Observation Scale for Infants. *J of Autism and Devel Disord*, 38: 731-738
- Chawarska, K., Paul, R., Klin, A., Hannigen, S., Dichtel, L. E., & Volkmar, F. (2007). Parental recognition of developmental problems in toddlers with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 37: 62-67
- De Giacomo, A, Fombonne, E. (1998) Parental recognition of developmental abnormalities in autism. *Eur. Child Adolesc. Psychiatry* 7:131-136
- Howlin, P., Asgharian, A (1999) The diagnosis of autism and Asperger syndrome: findings from a survey of 770 families. [*Developmental Medicine & Child Neurology*](#) (1999), 41: 834-839
- Kobayashi, R., Muruta, T. (1998). Setback phenomenon in autism and long-term prognosis. *Acta Psychiatr. Scand.* 98: 296-303
- McConkey, R., Truesdale-Kennedy, M. & Cassidy, A. (online 13 May, 2008). Mothers' Recollections of Early Features of Autism Spectrum Disorders. *Child and Adolescent Mental Health*. DOI 10.1111/j. 1475-3588.2008.00495.x
- Reznick, J., Baranek, G., Reavis, S., Watson, L and Crais, E., (2007) A Parent-Report Instrument for Identifying One-Year-Olds at Risk for an Eventual Diagnosis of Autism: The First Year Inventory. *J of Autism and Devel Disord*, 37: 49-61
- Tuchman R., Rapin, I. (1997). Regression in Pervasive Developmental Disorders,. *Pediatrics*, 99: 560-566
- Volkmar, F., Charwarska, K. and Klin, A. (2005) Autism in Infancy and Early Childhood. *Annu Rev. Psychol.* 56: 315-336
- Yirmiya, N., Ozonoff, S. The very early autism phenotype. *J of Autism and Devel Disord*, 37: 1-11