STATE OF THE ART

CHILDREN AT RISK FOR AUTISM – IDENTIFICATION AND PREVENTATIVE INTERVENTION

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ABSTRACT

Autism spectrum disorders (ASDs) are becoming increasingly frequent among children, with a detrimental effect on both an individual and a societal level. In an attempt to treat this disorder more effectively, researchers have begun identifying at-risk children and implementing programs especially elaborated for very early intervention. Although the results come from pilot studies, they are promising and could be the key to a more effective treatment and a better quality of life for affected children, families and society alike. Infants who are siblings of children diagnosed with ASD, children born prematurely or children showing early symptoms of autism and others could, very soon, be included in short-term programs in the hopes of preventing a diagnosis of ASD.

Keywords: autism, high risk individuals, ASD, early intervention.

The latest data show that one in six children in the United States is diagnosed with a developmental disability, ranging from milder disabilities, such as speech impairments, to more severe ones, like intellectual disabilities, cerebral palsy and autism; moreover, an increasing prevalence of autism spectrum disorders has been registered among children, with as much as 1 in 68 children being diagnosed with this condition [1]. The same Centers for Disease and Prevention informs that autism spectrum disorders (ASDs) affect people from all races and socioeconomic groups.

These increasing rates in prevalence and the degree of impairment in terms of social functioning for these individuals result in dramatic costs for the state or the health care systems. For example, the national costs of supporting children diagnosed with this disorder come to about $61 billion in the US and about $4.5 billion in the UK, while for adults these figures go even higher to about $180 billion and $44 billion, respectively [2].

Since there is no known cure for ASD and the disorder cannot be detected before birth, researchers have been trying to find methods for not only offering better treatment to people diagnosed with the disorder, but for preventing the appearance or severity of symptoms and thus reducing the financial burden on national budgets.

Looking at high risk individuals

One of the ways in which this burden can be reduced is by identifying those individuals that are at a higher risk of having the disorder and screening these populations more thoroughly in the hopes of diagnosing and treating it earlier on.

But who is at risk for ASD? Certain studies have identified some categories more vulnerable to showing signs of autism.

For example, boys have a higher risk of having ASD than girls, with a range between 3.2 males for 1 female and 7.6 males to 1 female, according to a study [3].

Other people with a high risk of ASD are premature babies. This only refers to extremely preterm babies, who were born before 26 weeks of pregnancy, these children showing a higher risk of developing autism spectrum disorder symptoms and of being diagnosed with
ASD in middle childhood [4]. In this study, 8% of the extremely preterm babies were diagnosed with this condition.

Another risk factor is that of having other developmental disorders. They are rare disorders which appear to increase the risk of also being diagnosed with ASD and include, among others, Fragile X syndrome, neurocutaneous disorders – such as tuberous sclerosis, phenylketonuria, fetal alcohol syndrome, Angelman syndrome, Rett syndrome or Smith-Lemli-Opitz syndrome [5].

Parents’ age also seems to be associated with a higher risk of developing ASD symptoms in children. It seems that a 10-year increase in maternal age was associated with a 38% increase in the odds ratio for autism, while a 10-year increase in paternal age was associated with a 22% increase [6]. The magnitude of this effect was greater among first-born compared to later-born children. However, a more recent study conducted in five countries (Denmark, Israel, Norway, Sweden and Western Australia) on 5,766,794 children born 1985–2004 and on 30,902 children with ASD showed that advancing maternal and paternal age were associated with a higher relative risk of ASD, but so was younger maternal age and couples with increasing differences in parental ages, in the sense of disparately aged parents [7]. The same study suggests that advancing paternal age may contribute more to the risk than advancing maternal age overall.

Having a sister or brother diagnosed with ASD also makes the sibling a high risk individual [8]. Epidemiologic studies show that 2-8% of the siblings of ASD children will also be diagnosed with ASD, while there is a 60% concordance for classic autism in monozygotic twins versus 0 in dizygotic twins [9]. However, more recent studies show even greater prevalence rates among siblings. The authors of a study conducted on 664 infants who had an older sibling diagnosed with ASD found that 18.7% of the infants developed the disorder, with the age of the infant at study enrollment, the gender and functioning level of the infant's older sibling, and other demographic factors not predicting ASD outcome [10].

**Early intervention as a preventative measure**

Early intervention has been shown to have very promising results on the development of children diagnosed with ASD. One of the types of intervention that appear to yield results is the intervention based on the Early Start Denver Model (ESDM) – in one pilot study a group of researchers tested a 12-week low intensity treatment on infants between 7 and 15 months, resulting in much lower ASD rates than a group with similar symptoms who did not benefit of the treatment [11].

Another type of intervention is Pivotal Response Treatment (PRT) which also appears to increase the frequency of functional communication of very young children at-risk for autism [12].

Although researchers have just begun to obtain results in this area, the outcomes registered thus far are promising and may help change the rates of prevalence among children.

**Conclusion**

Certain children have a higher risk of being diagnosed with ASD. Fortunately, many of these can be identified early on and, with continuing progress in this area, could benefit from early intervention programs which might be able to not only mitigate their symptoms and recover their developmental delays but also prevent a diagnosis with ASD.

Thus, children who are at risk could be able to lead fully functional lives without the need of lifelong assistance, could obtain jobs, form and maintain long-term interpersonal relationships.

Furthermore, when considering costs, it is no doubt that a short, low intensity intervention, often implemented with the help of parents is less of a financial burden than a therapy program lasting for dozens of years and sometimes the entire person’s life, occurring daily and requiring one or several highly trained specialists.

Although the aim is not to eliminate autism or the qualities associated with ASD which make individuals unique, such interventions could improve the quality of life for both affected children and their families.

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