

Prediagnostic and comorbidity factors in preschool children with autism

Akademisk avhandling

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av

Lotta Höglund Carlsson

Fakultetsopponent:
Docent Margareta Dahl
Uppsala Universitet

Avhandlingen baseras på följande arbeten:

- I. Höglund Carlsson L, Gillberg C, Lannerö E, Blennow M.A. (2010). Autism: screening toddlers with CHAT in a child health care programme did not improve early identification. *Acta Pædiatrica*. 99, 1897–1899.
- II. Höglund Carlsson L, Westerlund J, Barnevik Olsson M, Gillberg C, Fernell E. (2015). Autism spectrum disorders before diagnosis - Developmental assessment at Child Health Centres at 18 months. *Submitted*.
- III. Höglund Carlsson L, Norrelgen F, Kjellmer L, Westerlund J, Gillberg C, Fernell E. (2013). Coexisting disorders and problems in preschool children with autism spectrum disorders. *Scientific World Journal*. 2013: 213979.
- IV. Höglund Carlsson L, Saltvedt S, Anderlid B-M, Westerlund J, Gillberg C, Westgren M, Fernell E. (2015). Ultrasound in the first and second trimester and autism; a prospective randomized study. *In manuscript*.

Handledare: professor Elisabeth Fernell

Biträdande handledare: professor Christopher Gillberg, professor Magnus Westgren,
Med dr Britt-Marie Anderlid



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Lotta Höglund Carlsson

Gillberg Neuropsychiatry Centre, Institute of Neuroscience and Physiology
Sahlgrenska Academy at University of Gothenburg
Göteborg, Sweden

ABSTRACT

The aim of the thesis was to investigate Autism Spectrum Disorder (ASD) diagnosed in the early years from different angles; screening, load of coexisting disorders, outcome at routine developmental surveillance, and to study a possible background factor (prenatal ultrasound).

The objective of **Paper I** was to investigate if the CHecklist for Autism in Toddlers (CHAT), when added to the routine 18-month developmental surveillance at Child Healthcare Centres (CHC), would result in earlier diagnosis and intervention for children with ASD. The study was carried out in southern Stockholm, and 18 - month-old children in northern Stockholm who underwent the same routine developmental surveillance at CHC, but not the CHAT- screening, served as a comparison group. Although a helpful tool, the use of CHAT in the investigated area did not lead to earlier diagnosis of ASD.

In the study reported in **Paper II**, records from the 18-month routine surveillance at CHC of children later diagnosed with ASD were reviewed. The study group consisted of 175 of a total of 208 children with ASD who had been referred to the Autism Center for Young Children (ACYC) in Stockholm for intervention. More than a third of the total group of children with ASD and half of the group with ASD and concomitant intellectual disability (ID) had failed the 18-month routine developmental surveillance, compared to one in fifty in the general child population. When the presence of regulatory problems also was taken into consideration, the difference between ASD and the general child population was even more marked.

The aim of **Paper III** was to examine different coexisting disorders in children with ASD. From the total group of 208 preschool children referred to in Paper II, 198 had been followed over a two-year period and were the subject of this study. At this follow-up, including broad clinical examinations, 91% of the children were found to have at least one coexisting developmental disorder or problem; language disorder being the most common, followed by ID, motor control problems, and severe hyperactivity.

In the fourth study, reported in **Paper IV**, the research question was whether early (gestational week 12) or later (gestational week 18) prenatal ultrasound would be associated with an increased risk for ASD in the child. The population under study comprised approximately 29.000 pregnant women, randomized to early or later ultrasound. The proportion of their children with ASD (with and without ID) was found to be identical in the two groups, 1.2%.

Conclusion Pre-school children with ASD usually have a complex clinical presentation with many more problems than those subsumed under the ASD label. Many of these children, particularly those who also have ID, can be identified at 18 - month routine health surveillance. Adding the CHAT to such surveillance did not, in itself, appear to increase the uptake rate. The frequency of ASD was similar in the early and later ultrasound groups.

Keywords: Autism Spectrum Disorder, Intellectual Disability, ESSENCE, Children, Screening, CHAT, Surveillance, Child Healthcare Centre, Prenatal ultrasound

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