

**Neuropsychiatric development and health in children with and without congenital heart block born to mothers with Ro/SSA autoantibodies – a retrospective follow-up**

Skog A. (1), Tingström J. (1), Salomonsson S. (1), Swedish CHB Study Group (1), Sonesson S-E. (2), Wahren-Herlenius M. (1)

Rheumatology Unit, Department of Medicine, Karolinska Institutet, Sweden (1);

Pediatric Cardiology Unit, Karolinska Institutet, Sweden (2)

**Introduction:** Women with Ro/SSA autoantibodies have an increased risk of having a child with neonatal lupus erythematosus (NLE) which includes manifestations such as congenital heart block (CHB). Some studies indicate that the CNS may be affected in children with NLE, and other studies have shown that children of women with SLE have an increased risk for learning disabilities. We therefore investigated neuropsychiatric development in children with and without CHB born to mothers with Ro/SSA autoantibodies.

**Methods:** Individuals born between 1980 and 2010 were selected from a population-based cohort of CHB patients. Medical records for siblings with and without CHB were retrieved from children healthcare centers and school health services and data on neuropsychiatric development (locomotor skills, hearing, speech, attention, learning, behavior, anxiety and depression) was extracted. Records from 109 individuals, 58 with CHB and 51 of their siblings without CHB were collected. A questionnaire was sent to the mothers to gather information on maternal diagnosis and treatment during pregnancy.

**Results:** The median time of follow-up was 12.7 years (25th-75th percentile: 8.1-17.5 years). Neuropsychiatric symptoms or disease were reported in 22 (20%) of the 109 children, 15 of which had CHB and 7 without CHB. Among the mothers of these 22 children, only one was steroid-treated during pregnancy. The most commonly reported problems were speech (9%), locomotor (7%), learning (7%), and hearing impairment (7%). Two categories observed reached a statistical difference between the groups, attention deficit; 10% in the CHB group and 0% in siblings ( $p<0.02$ ) and learning impairment; 12% in the CHB group and 2% in siblings ( $p<0.05$ ). Among the 9 mothers of children with attention deficit and/or learning impairment, 7 mothers (78%) were diagnosed with SLE ( $p<0.01$ ). None of the siblings had any reported neuropsychiatric diagnosis, whereas 4 children with CHB had a reported neuropsychiatric diagnosis. One female had dyslexia, one male had autism and two males had ADHD.

**Conclusions:** Our data suggest that impairment in neuropsychiatric development in terms of attention deficit and learning impairment is more frequent in children with CHB than in their siblings. However, this risk appears predominantly confined to children of mothers with SLE.