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Division of Clinical Paediatrics

Aetiology and prognosis of paediatric inflammatory bowel disease

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ABSTRACT

The incidence rates of childhood-onset inflammatory bowel disease (IBD) have increased worldwide during recent decades. The changing incidence rates of paediatric IBD underscore the importance of early environmental exposures in the pathogenesis of the disease. It is possible that atypical bowel colonisation early in life creates less stable homeostasis between the host immune system and microbiota and thus might increase risk of CD later in life. Some recent studies have reported that the childhood-onset IBD phenotype is characterised by increasing intestinal involvement over time and rapid progression to complicated disease behaviour.

The aims of this thesis were to study trends in paediatric IBD incidence, to test if markers of atypical or disturbed early bowel colonisation are associated with an increased risk of CD and to describe the prognosis of childhood-onset IBD.

In **paper I** we conducted a follow-up study of the incidence of paediatric IBD in the general population-based catchment area of northern Stockholm County 2002-2007. Medical records of all 133 children diagnosed with IBD were scrutinised. The sex- and age-standardised incidence of paediatric IBD was 12.8 per 10⁵ person-years. We concluded that the incidence of paediatric IBD during the study period was significantly higher than that observed in our earlier study covering 1990-2001.

In **paper II** we studied inpatient treatment for diagnoses associated with use of antibiotics and risk of CD. Patients with CD born 1973-1997 and matched controls were identified through Swedish population registers. Inpatient treatment for pneumonia before 5 years of age was associated with increased risk for CD (OR 3.54, 95% CI 1.78–7.04). We concluded that pneumonia, and thus antibiotic therapy, early in life was associated with subsequent CD risk and this may represent either causation or susceptibility.

In **paper III** we studied perinatal exposures and risk of CD during childhood. Patients diagnosed with paediatric CD 1990-2006 and matched controls and their perinatal exposures were identified through Swedish population registers. Birth by caesarean section was associated with a modestly increased risk for paediatric CD among boys (OR 1.25, 95% CI 1.01–1.54). We concluded that perinatal exposures associated with delivery mode may have a modest influence on CD risk during childhood among boys.

In **paper IV** we described the prognosis for all 280 patients with childhood-onset IBD in northern Stockholm County 1990-2007 over a median follow-up time of 8.8 years. From patient records we demonstrated that the cohort was characterised by extensive colitis that was relatively stable over time and associated with a relatively low risk of complications and intra-abdominal surgery. In conclusion, our findings confirm that patients with paediatric IBD have more widespread disease, but question the proposed dynamic and aggressive nature of the childhood-onset IBD phenotype.

This thesis adds to our knowledge about the incidence and risks for paediatric IBD and the prognosis of childhood-onset IBD. This information can be used as a foundation for discussions on future research in the field.

Keywords: inflammatory bowel disease, ulcerative colitis, Crohn's disease, risk factors, caesarean section, incidence, prognosis

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