

# Inflammatory bowel disease in Estonia: a prospective epidemiologic study 1993-1998

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## INTRODUCTION

The incidence of ulcerative colitis (UC) and Crohn's disease (CD) in Estonia in 1993-1998 was investigated prospectively. The mean annual incidence of UC was 1.7 per 100 000, and that of CD 1.4 per 100 000. This population-based study showed much lower incidence of UC and CD than those reported for western and northern Europe.

The incidence of ulcerative colitis (UC) and Crohn's disease (CD) have been studied by many doctors and every year new data<sup>[1,2]</sup> and reviews<sup>[3]</sup> published. A retrospective study of 1973-1992 revealed that UC (mean annual incidence 1.5 per 100 000) and CD (mean annual incidence 0.27 per 100 000) were not so common in Estonia as it is in other countries<sup>[4]</sup>. Estonia is a small country in northern Europe close to Scandinavian countries with the highest incidence rates of UC and CD<sup>[3]</sup>. And, therefore the aim of the present study was to prospectively estimate the incidence of UC and CD for 1993-1998.

## MATERIALS AND METHODS

The population-based study included the total population within Tartu County and was based on both ambulatory and hospitalized patients at Tartu University Hospital: Department of Internal Medicine, Department of Pediatrics and Department of Surgery. Tartu County provided excellent conditions for the epidemiologic research as the advantages of small geographic size, a state-controlled health care delivery system, and universal accessibility to health care, also the accessibility of individual data and confidence in

data quality. A rather stable population of Estonian origin (caucasian racial group) of the area consisted of 158516 inhabitants in 1993 and 151301 in 1998, i.e. approximately 10% of the population of Estonia. The diagnosis of UC or CD was based on endoscopic, radiological evidence or both, supported by histology from mucosal biopsies or surgical specimens using Lennard-Jones criteria. Only the patients with definite UC and CD in accordance with well-defined diagnostic criteria were included in the study. A thorough registration of the previously diagnosed UC and CD cases in 1973-1992 facilitated the confirmation of the new cases. The presence of antineutrophil cytoplasmic antibodies (ANCA) by indirect immunofluorescence was analyzed.

## RESULTS

In 1993-1998 a total of 16 patients with UC and 13 patients with CD were diagnosed. The mean annual incidence of UC was 1.7 per 100 000. The mean age at the diagnosis was 41.2 years (range 16-68 years). The male to female ratio was 1.0. At the time of diagnosis 9 patients had proctosigmoiditis, 5 left-sided colitis and 2 pancolitis. Colonoscopy was done on 14 patients, barium enema on 2 patients.

The mean annual incidence of CD was 1.4 per 100 000. The mean age at the diagnosis was 36.0 years (range 5-69 years). The male to female ratio was 2.3. At the time of diagnosis 6 patients had colitis, 3 ileitis and 4 ileocolitis. Five patients were operated on due to CD. Colonoscopy was done on all patients.

IgG ANCA were detected in 7 of the 14 patients with UC and in 3 of the 11 patients with CD. The predominant ANCA staining pattern was perinuclear.

## DISCUSSION

In this paper, the prospective study of 1993-1998 showed much lower incidence of UC and CD than those reported for western and northern Europe. At the same time, there seem to be no significant differences in the prevalence of ANCA compared with the data observed in different countries or in our earlier study. In our earlier study ANCA were detected in 49% patients with UC and 24% patients with CD<sup>[4]</sup>. Change over time in the incidence of CD (for 1973-1992 0.27 and for 1993-1998 1.4) may

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suggest the bias in disease definition and case ascertainment or diagnostic access bias in the previous retrospective study or time trend in incidence.

The reasons for such a low incidence of UC and CD are not known. Therefore, several causes should be taken into account. For instance, altered concentrations of colonic microflora have been demonstrated in inflammatory bowel disease patients. It was hypothesized that this altered concentrations have been reported in association with a decrease in the potentially protective lactobacilli and bifidobacteria<sup>[5]</sup>. And, there are geographic variations in human gastrointestinal microflora, too. The intestinal microflora was compared in one-year-old Estonian and Swedish infants by quantitative culture of faecal samples<sup>[6]</sup>. The major differences in the composition of the microflora were high counts of lactobacilli and eubacteria in the Estonian and increased numbers of clostridia in the Swedish infants<sup>[6]</sup>. The causes for the differences in microflora of the Estonian and Swedish children remain unexplained. The current microflora of the Estonian infants appears to be

similar to the prevailing microflora in infants of western Europa in the 1960s and 1970s<sup>[6]</sup>. Interestingly, epidemiological data generally do support steady and widespread increase in the incidence of CD during 1950-1990 in western Europa while the pattern for UC was stable<sup>[3]</sup>. Changes over time in the incidence of Crohn disease may suggest many possible factors including gastrointestinal microflora.

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