

# Crohn's disease in Norway 1956-63

E. GJONE, O. M. ORNING, AND J. MYREN

*From the Medical Departments A and B, Rikshospitalet, Oslo, and Department IX, Ullevål Hospital, Oslo, Norway*

**EDITORIAL COMMENT** The incidence of Crohn's disease in Norway has been studied for the eight-year period 1956-63. A total of 73 cases of typical Crohn's disease was reported. The average annual rate per 1,000,000 population was 2.6 and the incidence during the period under review may have risen. There was no sex difference. The incidence was low in the youngest age groups. The rate did not vary with geographical area. The ratio for the incidence of ulcerative colitis to Crohn's disease for the period was 9.3:1.

The incidence of ulcerative colitis in Norway has been studied by Ustvedt (1958) for the 10-year period 1946-55 and by Gjone and Myren (1964) for the five-year period 1956-60. All paediatric and medical departments of the country and the majority of small mixed hospitals gave individual information on their cases. For the last five-year period a total of 362 typical cases of ulcerative colitis was reported and the average annual rate per 1,000,000 population was 20.6, a rise in incidence from previous five-year periods.

The incidence of Crohn's disease in Norway has now been studied in a similar way for the five-year period 1956-60 and also for the years 1961-63. The results of this study are presented here and a comparison of the incidence of Crohn's disease and of ulcerative colitis is also given.

## PRESENT INVESTIGATION

Personal letters were sent to the heads of all the paediatric, medical, and surgical departments of the country and also to the heads of all the mixed hospitals. We asked for individual reports on all patients who had been treated for Crohn's disease in the years 1956-63. Crohn's disease was defined as a chronic relapsing enteritis of unknown aetiology which usually affects the distal ileum but may also affect the colon, presenting symptoms of intestinal stenosis, diarrhoea, anaemia, and fistula. Standardized report forms were sent to all departments. We asked for a report on all cases which had been given the diagnosis of regional enteritis, terminal enteritis, terminal ileitis, or Crohn's disease, requesting on the individual information forms the patient's name, sex, date of birth, address, date of first

admission for Crohn's disease in 1956-60, the year of first diagnosis, and the hospital's own evaluation of the case with registration as typical Crohn's disease or not. We also asked for comments from the reporting physician on the correctness of the diagnosis. If the diagnosis did not seem to be firmly established we asked for the full case report and re-evaluated the data.

All the departments of paediatrics (3), of surgery (55), and of internal medicine (59), as well as all the 22 mixed hospitals of the country responded to our inquiry.

Altogether 173 cases were reported. Of these 16 were excluded because they had been diagnosed as Crohn's disease before 1956 or later than 1963, nine because of double reporting, and 75 because they did not fulfil the criteria of Crohn's disease. The majority of these reports were received from surgical departments and represented different acute abdominal diseases (53). Of the remaining 73 patients with typical Crohn's disease, 50 were reported from surgical, 18 from medical, 0 from paediatric departments, and five from the mixed hospitals.

As for the previously published data, the calculation of the annual rates for the five-year period 1956-60 was based on the national census in 1958 when the mean population was 3,525,365. The annual rates for the years 1961-63 were calculated from the population of 3.65 million in 1962.

## RESULTS

**ANNUAL RATES** Table I shows the absolute numbers of patients with Crohn's disease admitted for the first time and the annual rate per 1,000,000 population.

TABLE I

FIRST ADMISSION TO HOSPITAL OF TYPICAL CASES		
Year	No. of Cases	Annual Rate per 1,000,000
1956	4	1.1
1957	8	2.3
1958	4	1.1
1959	8	2.3
1960	15	4.3
1961	10	2.7
1962	16	4.4
1963	8	2.2
Total 1956-63	73	2.6

The total number of cases of Crohn's disease was 39 in 1956-60 with an average annual rate of 2.2 per 1,000,000 population. The same figures for ulcerative colitis (typical cases) were 362 and 20.6 respectively. It is thus seen that there has been one case of Crohn's disease diagnosed per 9.3 cases of ulcerative colitis during this five-year period. In the years 1961-63, 34 cases of Crohn's disease were found, giving an average annual rate of 3.1.

The average annual rate for the whole eight-year period 1956-63 was 2.6 cases of Crohn's disease per 1,000,000 population. In 1956-59, 24 new cases occurred against 49 during the next four-year period, 1960-63. This represents an increase from 1.7 to 3.4 of the average annual rate from the first to the second period.

**AGE AND SEX DISTRIBUTION** Table II demonstrates the total numbers of patients with Crohn's disease by age and sex. No sex difference was observed. The

TABLE II

FIRST ADMISSION TO HOSPITAL OF TYPICAL CASES BY AGE AND SEX						
Age Group	Males		Females		Totals	
	No. of Cases	Annual Rate per 1,000,000	No. of Cases	Annual Rate per 1,000,000	No. of Cases	Annual Rate per 1,000,000
0-9	0	0	0	0	0	0
10-19	2	0.9	5	2.4	7	1.6
20-29	8	4.7	8	4.9	16	4.8
30-39	6	2.9	8	4.0	14	3.5
40-49	9	4.6	3	1.5	12	3.1
50-59	9	5.6	7	4.1	16	4.8
60-69	2	1.7	4	3.1	6	2.5
70-79	1	1.6	1	1.3	2	1.5
80-	0	0	0	0	0	0
Totals	37	2.6	36	2.5	73	2.6

youngest patient was 14 years old and the oldest 75 years. The incidence showed little variation in the age groups 20-59 years. The lack of sex difference and the even distribution in the age groups 20-59 years correspond well with the data from the ulcerative colitis study. The main difference was the low

incidence of Crohn's disease in the younger age groups with no patients below 14 years of age. For the period 1956-60 22 patients with ulcerative colitis were reported from the paediatric departments. Fifteen of these patients were in the age group 0-9 years. The same paediatric departments had not treated any patients with Crohn's disease in 1956-63.

**GEOGRAPHICAL DISTRIBUTION** An attempt is also made to group the reported cases according to the geographical areas of the country. Table III presents both the total numbers and the average annual rates. No significant variation was found between the different areas. This contrasts with the previous finding of a lower rate of ulcerative colitis in some of these areas.

TABLE III

FIRST ADMISSION TO HOSPITAL OF TYPICAL CASES BY GEOGRAPHICAL AREA		
Area	No. of Cases	Average Annual Rate per 1,000,000
Eastern	33	3.0
Inland	8	2.9
Southern	3	2.0
Western	9	1.9
Trøndelag	9	3.5
Northern	11	3.2
All areas	73	2.6

## DISCUSSION

In this epidemiological investigation we have used the same method as previously for ulcerative colitis and discussed in detail by Ustvedt (1958). We accepted the diagnosis of Crohn's disease made by the peripheral hospitals if it were characterized as a typical case of the chronic regional enteritis by the head of the department. In the other cases we made a full revision of the case reports ourselves.

A retrospective study of this sort is fraught with many problems. The main one is whether the obtained information has given us the true incidence of the disease. As for ulcerative colitis, the time of onset is difficult to ascertain. There may be a varying time lapse between the onset of symptoms and admission to hospital and from admission to the final establishment of the diagnosis. We believe that the natural course of Crohn's disease is such that it sooner or later brings the patient to hospital, making it possible to discover it. It was decided to get as high a degree of response as possible. For that purpose we made the questionnaire very simple and we repeated the requests until all the hospitals had responded. We do not think that any under-reporting has taken place, and we believe that all cases treated

for Crohn's disease in the country during this period are amongst those reported. The majority of incorrectly classified cases were due to the reporting of all cases of regional enteritis, both acute and chronic. Those cases with acute illness, without later admission to hospital for an abdominal disease that could arouse suspicion of Crohn's disease, were excluded. Three cases were difficult to classify even when all data were re-evaluated and these were excluded from the study. In conclusion we think that very few cases of Crohn's disease in this country have escaped registration and of those reported only three were difficult to classify.

The rate per 10,000 hospital admissions, as used in many epidemiological studies, is not regarded as a good measure of the occurrence and distribution of Crohn's disease. We have therefore calculated the incidence as annual rates per 1,000,000 population similarly to the ulcerative colitis study. The total number of cases in our study is small and the incidence of Crohn's disease in Norway was very low during the period 1956-63. Our figures do not allow any definite conclusion as to variation in incidence

during this period. The average annual rate for the first four years was 1.7 compared with 3.4 for the last four years, indicating that a rise in incidence may have taken place. The average annual rate for the whole period was 2.6 per 1,000,000 population. Our data show very clearly that the frequency of Crohn's disease is definitely less than that of ulcerative colitis in all age groups, with an overall ratio between ulcerative colitis and Crohn's disease of 9.3:1. The sex and age distribution of these diseases showed very much the same patterns. Only one difference was obvious, namely, the lower incidence of Crohn's disease in the youngest age groups. We also wish to stress that no difference was found between geographical areas: the incidence was the same in the rural eastern areas as in the coastal northern areas.

#### REFERENCES

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