

Incidence of Perthes' disease in Uppsala, Sweden

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The annual incidence of Perthes' disease in Uppsala County, Sweden, was computed for the years 1978-1989 and further analyzed as regards age and

sex distribution. The annual incidence was 8.5 per 100,000 in children 0-14 years of age.

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Submitted 91-07-26. Accepted 91-12-04

Reports from different parts of the world show great variations in the incidence of Perthes' disease (Mose 1964, Malloy and MacMahon 1966, Gray et al. 1972, Niclasen 1974, Ebong 1977, Baker et al. 1978, Thompson et al. 1978, Purry 1982, Hall et al. 1983, Hall and Baker 1989). As regards the Scandinavian countries, the report from the Faroe Islands (Niclasen 1974) displayed the highest incidence ever reported. In Denmark, Mose (1964) showed an incidence that was more than a third lower than that of the Faroe Islands.

We estimated the incidence of Perthes' disease in Uppsala County, Sweden.

Patients and methods

During the period 1978-1989, details of all the patients with Perthes' disease in Uppsala County were established from admission records and patients' charts. All the children in Uppsala County with Perthes' disease were supposed to be admitted to our department. Demographic population data were obtained from official county administrative statistics (*Statistical Abstracts of Sweden 1978-1989*).

During the period 1978-1989, we recorded 51 children under 15 years of age with Perthes' disease. The diagnosis was verified by radiographic examinations. The peak age was defined as the age of the greatest number of patients.

According to Malloy and MacMahon (1966), the total attack rate was computed by adding the annual incidence rates for every age class over the total period of risk. The attack rate gives the total risk of a child contracting Perthes' disease during her/his childhood, and this is of much more interest than prevalence.

Table 1. Annual incidence of Perthes' disease in children up to 14 years of age in Uppsala County, 1978-1989

Age	Number of patients			Uppsala County population 1978-1989 (thousands)	Incidence per 100,000 children
	Boys	Girls	Total		
< 1	0	0	0	40	0.0
1	0	0	0	39	0.0
2	3	0	3	39	7.8
3	5	2	7	39	18
4	9	2	11	39	28
5	3	4	7	39	18
6	7	2	9	39	23
7	5	2	7	40	18
8	3	1	4	40	10
9	2	0	2	41	4.9
10	1	0	1	41	2.5
11	0	0	0	41	0.0
12	0	0	0	42	0.0
13	0	0	0	43	0.0
14	0	0	0	43	0.0
Total	38	13	51	599	8.5

Results

We recorded 38 boys and 13 girls (ratio 2.9:1) with Perthes' disease. There was unilateral involvement in 45 patients and bilateral involvement in 6 patients.

The mean age at diagnosis was 5 years and 9 months (2-10 years). The peak age was 4 years. The annual incidence for children up to 14 years of age was 8.5 per 100,000. The attack rate was 1:770 (Table 1).

Discussion

Malloy and MacMahon (1966) gave three methods of measuring the frequency of a disease: namely, prevalence, annual incidence, and the attack rate. Their

Table 2. Incidence of Perthes' disease in published reports

Reports	Annual incidence per 100,000 children	Attack rate
Molloy and MacMahon (1964) (Massachusetts, U.S.A.)	5.7	1:1,200
Gray et al. (1952-1967) (British Columbia, Canada)	5.1	1:1,400
Hall and Barker (1982-1984) (Yorkshire, England)	6.1	1:1,090 ^a
Barker et al. (1976) (Three regions of England)		
Mersey	11	1:600 ^a
Trent	7.6	1:875 ^a
Wessex	5.6	1:1,190 ^a
Total	8.0	1:835 ^a
Hall et al. (1976-1981) (Liverpool, England)	16	1:375
Purry (1975-1979) (Eastern Cape region, South Africa)		
White	11	1:620
Colored	1.7	1:3,850
Black	0.5	1:14,800
Mose (1953-1957) (Two areas of Denmark)		
Zealand	8.0	1:835 ^a
South-Jutland	9.0	1:740 ^a
Niclasen (1948-1968) (Faroe Islands)	29	1:225 ^a
Our study (1978-1989) (Uppsala County, Sweden)	8.5	1:770

^a The attack rate was calculated approximately by the authors of this study, and we used the available incidence figures.

opinion was that the most appropriate method for epidemiologic studies of Perthes' disease was the attack rate, because this disease has a limited period during which children are at risk. In their study from Massachusetts in 1964, they reported an annual incidence of 5.7 per 100,000 white children under 15 years of age and an attack rate of 1:1,200. Incidence rates from other countries are tabulated in Table 2.

As far as we know, all the children with suspected or diagnosed Perthes' disease in Uppsala County are referred to our department from pediatricians, district medical officers, private medical practitioners, and the pediatric surgery clinic. However, the incidence should be termed minimal incidence, because some children with Perthes' disease may never have been contacted and examined by a physician. The number of patients who have never received a diagnosis should be approximately the same over the period of time in question.

From the Scandinavian countries, there are two reports: Mose (1964) calculated the incidence of

Perthes' disease in two areas of Denmark during the years 1953-1957 and found an incidence of 8.0 and 9.0 per 100,000 in each respective area. Niclasen (1974) reported the incidence in the Faroe Islands during the period 1948-1968. He found an incidence of 29 per 100,000, and this is three times higher than that of Denmark. The Faroe Islands represent a small, well-defined, and rather isolated community. Niclasen raised the question whether or not the high incidence can be attributed to the high rate of intermarriage within the small Faroese population.

In the present study, the annual incidence was 8.5 per 100,000 children and the attack rate was 1:770. This incidence was considerably higher than that reported from Canada (Gray et al. 1972) and the United States (Molloy and MacMahon 1966), but similar to that reported from three regions of England (Barker et al. 1978) and from Denmark (Mose 1964). An explanation for the differences in the incidence rates could be of a demographic nature and a greater mobility of the population with accompanying difficulties involved in locating patients in Canada and in the United States.

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