Epilepsy among children in Greenland

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ABSTRACT
Introduction. Epilepsy has been considered to be more frequent in Greenland than in Denmark, where the prevalence among children is 0.40 %. Study design. Evaluation of the prevalence, diagnosis and treatment of epilepsy among children in Greenland aged 0-15 years. Methods. During autumn 2000, 13 out of 18 hospitals in Greenland were visited. The population of children in the areas visited was 11,965 of a total of 15,226 in Greenland. All children with the diagnosis of epilepsy were referred for evaluation and the diagnosis was confirmed. When possible, informed consent was obtained to collect data from medical records Results. 43 children (18 boys) had the diagnosis of epilepsy. For 38 (15 boys) further data were obtained. Mean age was 8.5 years (3-14) for boys and 7.9 years (2-14) for girls. The age at diagnosis was 4.9 years (1-11) for boys and 4.2 years (0-10) for girls. The prevalence of epilepsy was 0.34%. In 31 cases an electroencephalograph (EEG) recording was done, comprising sleep recordings in 26 cases. Medication was according to recommendations in Denmark. Conclusion. The prevalence of epilepsy in children and the medical treatment of epilepsy among children in Greenland is the same as in Denmark.

Key words: epilepsy, children, Greenland

INTRODUCTION
The overall prevalence of epilepsy is reported to be 0.2-0.7 % in different populations. (1,2). Some epileptic syndromes have a specific age-related start.

For about 50% of patients with epilepsy the disease will start during childhood, and about half of the children with epilepsy will have the disease for a limited period of time only and will not be epileptic as adults.

Epilepsy has for many years been considered to be more frequent in Greenland than in Denmark, where the prevalence among children is about 0.40%. Only few reports have been published on the prevalence of epilepsy in Greenland. A study from 1987-93 based on medical records in Greenland showed an overall prevalence of epilepsy in Greenland of 0.41%, the majority being children. (2). In reports on diagnoses among children referred for paediatric evaluation in various parts of Greenland in 1992-94 the figures reported for prevalence of epilepsy have been 0.60% (3) and 0.41% (4).

Children with epilepsy in Greenland are referred to the local hospitals for evaluation, diagnosis and treatment. Electroencephalogram investigation (EEG) can only be carried out in the hospital in the capital Nuuk. If children with neurological diseases are sent abroad for further examinations and evaluation, they are referred to Danish hospitals, most likely The State Hospital (Rigshospitalet) in Copenhagen. This has been done in a number of cases.

The local hospitals are visited once or twice per year by one of 4-6 paediatric consultants who go to Greenland on a regular basis, and the chil-
dren with the diagnosis of epilepsy come for evaluation. Medication for epilepsy is dispensed free of charge by the local hospital and cannot be bought anywhere else in Greenland.

The aim of this study was to evaluate the prevalence, diagnosis and treatment of epilepsy among children in Greenland aged 0-15 years, and compare the findings with the situation in Denmark.

MATERIAL AND METHODS
During autumn 2000, 13 out of 18 local hospitals in Greenland were visited by the authors, who all work on a regular basis as paediatric consultants in Greenland. The population of children aged 0-15 years in the area visited was 11,965, of a total of 15,226 children in Greenland. All children with the diagnosis of epilepsy were referred for regular paediatric evaluation that had already been planned, and the diagnosis was confirmed in all cases. A data sheet was used for each child to collect information on the following items: nationality, age at diagnosis, EEG, type of seizures and actual medication. Written information about the study in Danish and Greenlandic was given to parents or guardians. The study was accepted by the Committee for Scientific Studies in Greenland.

RESULTS
Altogether 43 children (18 boys) in the areas visited had the diagnosis of epilepsy. All were Greenlanders. This means a prevalence of epilepsy of 0.34% among all children aged 0-15 living in Greenland. Among children born in Greenland the prevalence was 0.37%. In 38 cases (15 boys) it was possible to obtain signed informed consent for participation in the study: mean age was 8.5 years (3-14 years) for boys and 7.9 years (2-14 years) for girls. Age at diagnosis was 4.9 years (1-11 years) for boys, and 4.9 years (0-10 years) for girls. In 31 cases an EEG was performed, 24 in Greenland, 7 in Denmark, and in 3 cases both in Greenland and in Denmark. In EEG recordings 26 cases out of were described with abnormalities such as generalised (n=7), focal (n=6) and multi focal (n=7) abnormalities. In 6 cases the type of abnormality was not described.

The type of seizures reported were generalised (n=16), simple partial (n=1), complex partial (n=7) and complex partial with secondary generalisation (n=14).

Medication was given in 36 cases, 32 had one medication (mono therapy), 4 children had 2 or more drugs (poly therapy). The type of medication was valproic acid (n=16), oxcarbazepine (n=9) carbamazepine (n=4) lamotrigene(n=1) or clobazam (n=1). In one case no information about medication was available.

DISCUSSION
Information about children with epilepsy in Greenland was obtained from an area where 80% of children in Greenland live. A prevalence of 0.34% is very close to the prevalence among children reported in Denmark of 0.40%. Presuming a uniform prevalence of epilepsy all over Greenland, 54-55 children in Greenland will have epilepsy. The possibility exists that some children with epilepsy in Greenland are not diagnosed, but it is our impression that children in Greenland with all kinds of seizures, also non-epileptic, are referred for medical evaluation and paediatric evaluation when possible. All children in Greenland with epilepsy get medication from the local hospitals, so the possibility of children receiving medication without it being known in the local hospitals seems unlikely.

The former impression of epilepsy being more frequent in Greenland than in Denmark might have been the truth years ago. The haemophilus influenza vaccine was introduced in Greenland for all children in 1995 and this together with an improved general health service, including improved perinatal and neonatal healthcare in Greenland during the last decades, may have reduced the number of children with acquired intracranial pathology and thereby the risk of epilepsy. The numbers of children with idiopathic epilepsies (most often on a genetic basis) are expected to be unchanged during the last few decades. The figures for mean age and age at di-
agnosis are close to the results from earlier studies (2) and it is our impression that they are very much like the situation in Denmark. This is also the case with EEG abnormalities and types of seizures. In earlier studies, the majority of cases reported were partial epilepsy (2), which again may be related to the fact that some decades ago there were more cases with intracranial pathology. The medical treatment for epilepsy was in accordance with Danish recommendations at the time of the study (2000); this was also seen in earlier studies (2). 7 children with the diagnosis of epilepsy had had no EEG done. This could have been the case in Denmark years ago, but, to our knowledge, would not be seen today. The reasons for this in Greenland could include the long distance to the capital Nuuk and other demographic circumstances that are not found in Denmark. Besides the difference in EEG accessibility, we do not find any important differences between the conditions for children with epilepsy in Greenland and in Denmark.

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