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Parts of Faroese  
Neuroepidemiology

*Poul Joensen*

FØROYA FRÓÐSKAPARFELAG TÓRSHAVN

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*Parts of Faroese Neuroepidemiology*

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Gunnar Guðmundsson  
deildarforseti

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# PREFACE

The studies to be reported in this paper were carried out from the autumn of 1975 to december 1980.

Permission to collect and use material from the various hospital departments was given by the heads of the respective departments. The permission to use information from the documents of the Faroese Accident Insurance Council was given by the Faroese judge.

My wife, Ása, has been helpful in collecting data and has done the secretarial work in connection with the paper.

The translation of the summary from Faroese into Icelandic was done by Magnús Snædal, M.A., Senior Lecturer, and the linguistic revision of the Faroese summary by Jóhannes av Skarði, honorary Ph.D., former High School Principal.

Linguistic revision by Anna la Cour, née Claessen.

Velbastaður, February 1991,

*Poul Joensen*

*To my wife, Ása*

# SOME FACTS ABOUT THE COUNTRY AND ITS POPULATION

The Faroes are situated around 62° northern latitude and 6-7° western longitude. The population is believed to descend from Norwegians and Celts who settled on the islands in the late 9th century A.D., at the time of settlement in Iceland. To what extent other ethnic groups have moved to the islands and thus make up part of the present Faroese population is unknown, but anthropological investigations indicate that on the whole the Faroese population bears most resemblance to Icelanders (Suter et al. 1979).

Real growth of the population does not appear to have taken place until the beginning of the 19th century. From 1860 to 1901 the population increased from 8,922 to 15,301 (Föroyar I and II 1958). In January 1962 it was 35,748 (Statistical Yearbook 1963), and in December 1980 43,609 (Statistical Yearbook 1983).

From the beginning of the investigations presented here and until they were concluded, the population increased by 8000 persons (Yearbook for the Faroes 1960-84). This growth is due chiefly to an increase in the local population, not to immigration. People who move from and to the Faroes are mostly Faroese moving to and from Denmark. The number of people moving to the islands from other countries is on the whole negligible. For instance, it was apparent from the 1977 census (Yearbook for the Faroes 1980) that of the total population domiciled on the Faroes only 2,429 were born outside the Faroe Islands. Among them 1828 were born in Denmark and 105 in Greenland.

In 1977 47.5% were females and 52.4% males. The greatest surplus of men was in the age groups up to 40 years, but right up to the age of 65 there was a majority of males.

During the period 1971-74 the mean life expectancy was 72.4 years for males and 76.7 years for females. From 1966-80 the number of liveborn infants decreased from 967-725 per annum.

In December 1981 12,800 of the 44,070 inhabitants were domiciled in Tórshavn, the remainder in villages having populations of 1000-4,800. The population increase per 1000 persons was in 1966: 18.7 and in 1980: 9.5 per annum (Yearbook for the Faroes 1982). In 1977 the working population consisted of 73% men and 27% women. From 1966 to 1977 the population over 65 years of age has grown from 8.5% to 9.7% of the total.

The Faroese population is a young one. In 1980, for example, 37.4% of the population was under 20 years of age, 14.7% over the age of 60. In some neighbouring countries the figures were: In Greenland 41.8% under 20 and only 5.5% over 60. In Denmark 28.6% under 20 and 19.5% over 60. In Iceland the figures are on a level with those applying to the Faroes (Demographic Yearbook 1981).

The most common causes of death on the Faroe Islands are like those in the Scandinavian countries: 22% die of malignant diseases, 35% of coronary arterial and coronary diseases, and 11% of cerebrovascular diseases (Ellefsen and Ellefsen 1979).

The material published in the present paper is a survey and discussion of the following articles already published:

1. Joensen P: Incidence of primary intracranial neoplasms in an isolated population (the Faroese) during the period 1962-1975. *Acta Neurol. Scand.* 64: 74-78, 1981.
2. Joensen P: Stroke in an Isolated Population. Incidence on the Faroes during 1962-1975. *Acta Med. Scand.* 212: 309-311, 1982.
3. Joensen P: Subarachnoid Hemorrhage in an Isolated Population. Incidence on the Faroes During the Period 1962-1975. *Stroke* Vol. 15, No. 3; 438-440, 1984.
4. Joensen P. Prevalence, Incidence, and Classification of Epilepsy on the Faroes. *Acta Neurol. Scand.* 74; 150-155, 1986.

# INTRODUCTION

The studies reported here were started in 1975. Their object was to investigate the incidence of the most common neurological diseases on the Faroe Islands.

These diseases are: Cerebrovascular diseases, i.e. cerebral infarct, intracerebral bleeding, subarachnoid bleeding, intracranial neoplasms, and epilepsy.

The Faroes must be considered well-suited for epidemiological studies, having a well-delimited and well-defined population which is fairly stable as regards immigration and emigration. Moreover, it is an ethnically uniform population group, as demonstrated by anthropological studies (Suter et al. 1979). There are favourable possibilities of following the various persons up, as in most cases they can be found, either by enquiring at the National Registry, from family or others who have been in touch with him/her. Thus, there is always a chance of obtaining information about these persons' present status, and also of knowing whether they have been alive on a given date.

The reason why the studies comprise the period from 1962 and onwards is that a department of internal medicine was established at Landssjúkrahúsid in Tórshavn (The National Hospital in Tórshavn), and from then on the diseases in question have been accurately diagnosed. Accurate recording of the admitted patients was also started from that time.

The hospital service in 1979: The National Hospital in Tórshavn had 294 beds and admitted patients from an area with 30,000 inhabitants (Ellefsen and Ellefsen 1979). In addition, patients were admitted to the National Hospital from the regions served by the other two hospitals, viz. Suðuroyar Sjúkrahús in Tvöroyri and Klaksvíkar Sjúkrahús in Klaksvík. Each of these hospitals serves a population of around 6,000 people. Patients suffering from neurological diseases are usually admitted to the National Hospital in Tórshavn.

Since 1970 an adviser in neurology has been attached to this hospital. Several sources have been used to succeed in finding patients who might have one of the diseases which are the subject of the study. All three Faroese hospitals have a diagnostic file and a register in which all admissions are recorded. In addition to name and birth date this register includes diagnosis at admission and at discharge. The diagnostic files and the registers were perused by the author in the search for patients having the named neurological diseases.

All documents relating to applications for disability pension or early retirement pension, viz application and medical reports, are kept in a file at the Faroese Accident Insurance Council. All the physicians' statements in these files, from 1939 to 1975, were perused by the present author, and all patients with neurological diseases were picked out. Thereupon, the case records from the hospitals were obtained, either from the National Hospital in Tórshavn or from the neuromedical or neurosurgical departments of Rigshospitalet (University of Copenhagen), to establish with certainty the nature of the disease. Copies of death certificates issued on the Faroes during the period 1962 to 1980 are filed at the National Hospital. All these death certificates were perused, and a record was made of which patients had the diagnoses: stroke, cerebral infarct, intracerebral haemorrhage, subarchnoid haemorrhage or intracranial neoplasm on the death certificate. The case records for these patients were obtained, and accurate data about which disease was concerned were recorded.

Since 1970 the National Hospital has kept a local register including a card for each patient who had cancer. All these cards were perused in the search for patients having intracranial neoplasm. For these patients the case records were obtained, either from the National Hospital in Tórshavn or from Rigshospitalet, Copenhagen, in order to arrive at accurate information regarding the exact diagnosis. Since 1970 the National Hospital, Tórshavn has had a laboratory for electroencephalographic tracings. When this examination has been carried out a card with the patient's name and birth date is filed. In addition a brief history is given, in particular about the type of seizures the patient has had. After all these cards had been perused the patient's name and birth date as well as the type of seizures were recorded. Then, the case records were picked out to be able to ascertain whether the patient had epilepsy. One part of the study was to find out which persons with Faroese names had been admitted to the neurological and neurosurgical departments of Rigshospitalet, Copenhagen, the case records were obtained to ascertain which diseases they had, and a record was made of the patients admitted with stroke, epilepsy or intracranial neoplasm.

# INCIDENCE OF PRIMARY INTRACRANIAL TUMOURS ON THE FAROE ISLANDS DURING THE PERIOD 1962-1975

Up to 1955 intracranial neoplasms on the Faroe Islands were recorded only from death certificates (Causes of Death in the Kingdom of Denmark 1955-59). As stated in a paper by Sanna Dahl (Niclasen Dahl 1966) Denmark has from 1942 and Iceland from 1954 had cancer registries for the recording of all cases of cancer.

R.K. Rasmussen, in the medical district of Eiði, made the first attempt to record cancer on the Faroes (Rasmussen 1954), and for the period 1955-59, a survey on cancer as a cause of death on the Faroe Islands was written by Niclasen Dahl (1966).

Eight cases from the named period were found to be intracranial neoplasms.

The incidence of primary intracranial tumours has been from about 13 in 100,000 annually in the USA (Percy et al. 1972) to about 10 in most European studies. An American incidence study (Walker et al. 1985) comprising, 1,060 intracranial neoplasms demonstrated that metastases were equally common as primary intracranial tumours. The risk of developing an intracranial neoplasm was lowest at the age of 10 years, increasing up to the age of 60, whereupon it remained constant or decreasing for the over-60 age groups. About half the diagnosed primary intracranial neoplasm were gliomas. Medulloblastoma and cerebellar astrocytoma were neoplasms characteristic of childhood and youth. Glioblastoma, neurinoma, and meningioma showed an increasing incidence with advancing age.

It was also demonstrated by the study that men had a higher incidence than women, 8.5 and 7.9 respectively per 100,000 annually.

Previously the incidence of primary intracranial neoplasms on the Faroes had not been studied. The object of the present study was to establish the frequency of primary intracranial neoplasms on the Faroes during the period 1st January - 31st December 1975.

## Material and Method

Primary intracranial neoplasms are tumours arising from the tissues within the skull, i.e. from the cerebral tissue, meninges, cranial nerves, or the pituitary gland. Neoplasms arising from the orbit, middle ear, nose and pharynx, or from muscles, bones, and cartilage in the skull were not included.

On the other hand, craniopharyngiomas and dermoid

cysts as well as pituitary neoplasms were included, as in the Icelandic study by Guðmundsson (1970).

In the search for persons having intracranial neoplasms, all applications for disability pension and early retirement pension were perused, and so was the local cancer registry at the National Hospital in Tórshavn.

The diagnostic files of the three Faroese hospitals were searched, and the names of persons that might be considered to have had intracranial neoplasms were recorded. During the period in question persons suspected of having an intracranial neoplasm were referred for further examination, and possible treatment, to the neurological or neurosurgical departments of Rigshospitalet, Copenhagen. Its case records were perused to ascertain whether the diagnostic criteria had been fulfilled.

All death certificates from the period 1962-75 were perused, and the National Registry on the Faroe Islands as well as the general practitioners were asked which of the persons concerned were alive on Dec. 31st 1975. As for persons who had died, it had been recorded when death occurred in relation to the onset of the disease. All the cases included in the present material had been verified histologically with the exception of a pituitary tumour which had been diagnosed by CT scanning.

Only patients whose diagnosis had been made *in vivo* during the period January 1962 - Dec. 1975 were included in the material. Secondary neoplasms were excluded. If it was not quite clear from the case record whether or not there was a predisposition to neurological diseases in the immediate family, parents and children of the patients with primary intracranial neoplasm were asked about similar cases in the family. In the perusal of the case records the author has also counted how many of the patients had epilepsy.

Histological specimens had most often been tissue removed directly from the brain, during operation or at autopsy.

## Result

Among the Faroese population, mean 38,523 during the period 1962-75, there were 52 cases of primary intracranial neoplasm (35 in men and 17 in women). 35 of them were diagnosed as gliomas (6 atypical gliomas, 12 astrocytomas, 7 glioblastomas, 3 medulloblastomas, 4 ependymomas, and 3 oligodendrogliomas), 7 as meningiomas, 5 as pituitary adenomas, 3 as craniopharyngi-

omas, and 2 as acoustic neurinomas. The annual incidence was 9.9 in 100,000 (7.5-12.8), confidence limit at 95%).

The Faroese incidence is higher than the 7.8 per 100,000 found in the Icelandic study (Guðmundsson 1970) which comprised the period 1954-63, but the difference is not statistically significant ( $p > 0.05$ ). On the Faroes the incidence was also significantly higher ( $p < 0.05$ ) than that of 5.3 found in Carlisle, England, during the period 1955-61 (Brewis et al. 1966). In Israel too there has been a significantly lower ( $p < 0.05$ ) finding, viz. 7.3 for the period 1960-64 (Cohen and Modan 1968). A higher incidence has been found in Gothenburg, Sweden, viz. 11.4 for the period 1957-59 (Gonzales 1964), but this difference is not significant ( $p > 0.05$ ). In Rochester, Minnesota, the incidence has proved significantly higher ( $p < 0.05$ ), viz. 12.6 for the period 1935-68 (Percy et al. 1972).

In the age group 0-9 years the incidence of intracranial primary neoplasms was distinctly higher ( $p < 0.05$ ) than found in Iceland, viz. 8.5 on the Faroes against 2.9 in Iceland (Guðmundsson 1970), but the difference in this age group did not diverge significantly ( $> 0.05$ ) from that found in the British study, viz. 5.3 (Brewis et al. 1966).

In contrast to the Icelandic study (Guðmundsson 1970) and the one in Rochester, Minnesota (Percy et al. 1972), the present investigation did not show an increasing incidence with advancing age, and also not for the age groups over 60 (Table I).

The present study revealed a significantly higher incidence ( $p < 0.05$ ) of primary intracranial neoplasms in men than in women.

A familial accumulation of cases was not found.

Nineteen patients had epilepsy and 4 possibly had epilepsy.

34 patients had supratentorial and 18 infratentorial neoplasms.

17 of the intracranial neoplasms were extracerebral and 35 intracerebral.

The mean 5-year survival time with extracerebral neoplasms was 62%, for intracerebral ones 31%, mean survival time 60%.

Table I. Primary intracranial neoplasms diagnosed clinically 1962 through 1975. Rate of incidence in age groups

Age	Mean population	Total No. of cases	Age-specific incidence rate
0-9 years	8,436	10	8.5 ( 4.0-15.5)*
10-19 years	7,474	2	2.0 ( 0.3- 7.2)*
20-29 years	5,239	4	5.6 ( 1.5-14.0)*
30-39 years	4,469	5	8.0 ( 2.5-18.0)*
40-49 years	4,546	10	15.7 ( 7.7-29.3)*
50-59 years	3,698	12	23.1 (12.0-40.3)*
60-69 years	2,504	7	19.9 ( 7.8-40.1)*
70- years	2,159	2	6.6 ( 0.8-23.0)*
All ages	38,523	52	9.9 ( 7.5-12.8)*

\* 95% confidence limits for rate.

## Discussion

Among the well-defined and well-delimited Faroese population the incidence of primary intracranial neoplasm proved to be 9.9 per 100,000 persons per annum. This rate was found by investigating all available sources giving information about persons who had had symptoms or diseases which might indicate intracranial neoplasm. It is concluded, therefore, that all diagnosed cases have been included in the present study. In Carlisle, England (Brewis et al. 1966) and in Israel (Cohen and Modan 1968) the reported incidence is lower than on the Faroes, while in Rochester, Minnesota, higher rates have been found (Percy et al. 1972). The latter study, however, included also cases in which the diagnosis had been made at autopsy, without the patient having had any symptoms indicating intracranial neoplasm during life. In a more recent American investigation Walker et al. (1985) found a lower rate, viz. 8.3 in 100,000, than that reported from Rochester. The finding of a high incidence in the age groups from 0-9 years may be due to the small numbers involved, so that it may be a purely statistical phenomenon.

Provided that the ratio primary to secondary intracranial neoplasm is the same on the Faroe Islands as in the USA (Walker et al. 1985), the incidence of intracranial metastases in persons having cancer not affecting the central nervous system is 10 in 100,000 persons annually. If so, there appear to be 10 cases of intracranial neoplasm annually on the Faroes, viz. 5 primary and 5 secondary. The present study did not show an increased incidence in the over-60 age range as has been found in Rochester (Percy et al. 1972) and in Iceland (Guðmundsson 1970).

Walker et al. (1985) found that in USA the incidence rose from childhood up to the age of 55-64, then remained constant until the age of 75, but thereafter decreased. The findings in the present study were approximately the same, viz. the highest incidence in the age range 50-69. It must be borne in mind, however, that the present material has only 9 cases above the age of 60. This small number may be partly responsible for the result differing from those reported e.g. from Iceland (Guðmundsson 1970).

Survival rate, type of intracranial neoplasm, and the incidence of epilepsy were included in the present study to make it as complete as possible. Again, these figures are not comparable with those reported from elsewhere because of the small numbers involved.

The conclusion is that each year about 5 persons develop a primary intracranial neoplasm.

It is important to note also that the survival rate is fairly favourable. For instance, the 5-year survival rate with extracerebral neoplasms is 82%. It is worthy of note that the incidence is of a magnitude which calls for attention to intracranial neoplasm when a person on the Faroes complains of e.g. headaches, epilepsy, or focal sensory or motor neurological deficits.

# INCIDENCE OF STROKE ON THE FAROES DURING THE PERIOD 1962-1975

The second most common cause of death on the Faroes is cerebrovascular disease (Statistical Yearbook 1962-1975).

A prospective study from many countries planned by the WHO (Aho et al. 1980) showed that these diseases are of great social significance. Only 10% of those affected by such diseases were still working 3 months after the onset. One year after onset 20% had gone back to work. In other words, around 80% of the survivors are in need of disability pension or early retirement pension. Most of the investigations included in the WHO project disclosed that more than half of the victims were under 65 years of age and consequently in the working age.

Studies on stroke have been carried out int. al. in Denmark, Sweden, Finland, and Japan, and they have shown little difference in the incidence between the countries. The exceptions were Finland and Japan, where the incidence of stroke was higher than in the other countries included in the project.

Incidentally, it was revealed by the WHO multicentre study that people who have a stroke are often already suffering from other diseases. 7% had a history of cardiac infarct and around 30% of other cardiac diseases. About half the patients had hypertension and about 10% diabetes. Only 36% of the younger patients had none of the named diseases. The annual incidence in Europe was 200-250 per 100,000 persons. Of all those having a stroke 48% had succumbed within one year, but in this respect there was a marked age difference. In the age group 55-64, for instance, 65% were alive after one year, and among those younger the 1 year survival rate was even higher. Among the survivors 62% were able to attend to their personal needs, and only 9% were completely unable to do so. 20% had gone back to work (Aho et al. 1980).

As is apparent from the above, findings elsewhere have demonstrated that stroke is an important disease, socially as well as socio-economically.

The present study was undertaken to ascertain how many persons in the younger age groups of the Faroese population develop these diseases. Another object was to find out whether the incidence of stroke on the Faroes differed from the findings in other countries.

According to previous investigations, the Faroese population has dietary habits differing from those in Scandinavia and Western Europe (Vestergaard and

Zachariassen 1987). In a study from 1961 the serum cholesterol level on the Faroes was around 199 mg/100 ml which is about 20-30 mg lower than in a Danish study testing the serum cholesterol among 2000 Danish blood donors in the Bispebjerg Hospital, Copenhagen (B. Jensen 1961).

## Method and Material

Stroke has been defined as a clinical condition of focal or global changes in cerebral activity, leading to death or to a long-lasting condition, beyond 24 hours, and which cannot be attributed to causes other than vascular. As regards global changes, they usually consist in a reduced intensity of consciousness, and in that event there is generally a question of subarachnoid haemorrhage.

During the period under study such persons, if over 65 years of age, were often not hospitalized and also did not apply for disability pension or early retirement pension. It was, therefore, impossible to achieve reliable collection and registration of cases occurring in persons over 65. Frequently, the only information about a stroke was from the death certificate. This is not considered to afford reliable or complete data. Accordingly, the present study was restricted to the age groups up to 65 years. In this connection it must be mentioned that previously it has been demonstrated that only 60% of the strokes recorded in a given population mass are listed on the death certificates, either as the direct or as a contributory cause of death (Matsumoto et al. 1973).

Conversely, according to Whisnant (1984) the cause of death is often interpreted as a stroke, if a person loses consciousness and dies shortly after, whereas in fact a myocardial infarct has frequently been responsible.

To find persons who had had cerebrovascular diseases all death certificates from the period 1960-1975 were perused. So were all applications for disability pension and early retirement pension. The diagnostic files of the three Faroese hospitals were perused in the search for the following diagnoses: stroke, non-specific cerebrovascular disease, cerebral haemorrhage, transient cerebral ischaemia, cerebral embolism, and subarachnoid haemorrhage. Case records with the diagnoses multiple sclerosis and intracranial neoplasm were also perused to make sure that the patient had really been suffering from these diseases, and not from the sequelae to stroke. During the review it was secured that the

diagnostic criteria of stroke had been fulfilled. In 6 cases the patient had died before admission, and if so the diagnosis was derived from the death certificate. In the case of all persons included in the study, the diagnosis had been made in vivo. In retrospect, it could not be established whether there had been a question of haemorrhage or infarct in the brain. In persons with subarachnoid haemorrhage the spinal fluid tap or autopsy had shown the spinal fluid to be xanthochromic or bloody.

## Results

The annual incidence was 45.7 (95% confidence limits 33-55) per 100,000. The incidence in the age groups 15-65 was significantly lower ( $p < 0.05$ ) than that of 65 per 100,000 found in the Gothenburg, Sweden, study

(Harmsen et al. 1979). Among women the incidence was 48 (95% confidence limits 38-51) and among men 43 (95% confidence limits 34-55) in 100,000. As is apparent from Table IV the incidence rates for men in the age groups 45-54 and 55-64 were much lower than found in several other investigations. As in other countries, the present study showed an increasing incidence with advancing age.

## Discussion

As stated in the introduction, it has been demonstrated that in Faroese people the serum cholesterol level is 20-30 mg/100 ml lower than in Danes (Jensen 1961). It might be imagined, therefore, that the lower serum cholesterol level rendered the incidence of stroke on the

Table II. Number of cases and average annual incidence of types of stroke per 100,000 Faroese in 1962-1975

Age range (y.)	Mean population	Subarachnoid haemorrhage		Other types of stroke		Total		95% confidence limit
		No.	Rate	No.	Rate	No.	Rate	
15-44	15,093	12	5.7	7	3.3	19	9.0	5-14
45-54	4,276	10	16.7	27	45.7	37	62.4	43-85
55-64	2,963	12	29.0	62	149.4	74	178.4	139-221
65	303	-	-	15	359.0	15	359.0	198-582
Total	22,635	34	10.7	111	35.0	145	45.7	33-55

Table III. Number of cases and average annual incidence rates of stroke (attack rate) by sex per 100,000 Faroese in 1965-1975 in the age range 15-65 years.

Age range (y.)	Mean population		Males		Females		Total	
	Males	Females	No.	Rate	No.	Rate	No.	Rate
15-44	7,849	7,244	10	9.1	9	9.1	19	9.0
45-54	2,266	2,010	17	53.5	20	71.0	37	62.0
55-64	1,511	1,451	36	170.1	38	179.0	74	173.5
65	145	158	8	394.0	7	316.0	15	359.0
Total	11,711	10,863	71	43.0	74	48.3	145	48.5

Table IV. Annual incidence of stroke by sex per 100,000 persons in selected regions in the age range 45-64 years

	Years of study	Males		Females	
		Aged 45-54	Aged 55-64	Aged 45-54	Aged 55-64
Rochester, Minn., USA	1955-69	158	511	71	261
Espoo, Finland	1972-73	206	495	143	250
Frederiksberg, Denmark	1971-73	-	450	-	190
Gothenburg, Sweden	1970-75	97	316	65	174
Faroese (present study)	1962-75	54	170	71	179

Faroese lower among men aged 45-65 years than in Frederiksberg, Denmark (Stengaard Hansen and Marquardsen 1977), in Rochester, Minnesota, USA (Matsumoto et al. 1973) and in Finland (Aho 1975).

Among women aged 45-65 the incidence is at the same level as found elsewhere. However, it must be taken into account that in the present study only the first episode of stroke was included, unlike the Danish and Swedish studies.

Elsewhere, however, all investigations indicate that an increased serum cholesterol level does not cause an increased incidence of stroke (Nichaman et al 1975, Worth

et al 1975, Whisnant 1984). On the other hand, it is agreed that it predisposes to ischaemic heart disease.

It has been demonstrated that in Japanese domiciled in Hiroshima the mortality from stroke is higher than among Japanese living in California or on Hawaii, in spite of the finding that the Japanese in Hiroshima have a much lower serum cholesterol level than Japanese on Hawaii and in California (Nichaman et al. 1975, Worth et al. 1984). According to Whisnant (1984) the incidence of stroke in the USA has been decreasing for every 5-year period from 1945-49 up to 1969. During that period the incidence dropped by about 44% without there having been a simultaneous major fall in the serum cholesterol level among the US population (Whisnant 1984). On the whole, Whisnant (1984) felt that owing to the inconstant relation between serum cholesterol and stroke, the serum cholesterol was not likely to be a factor predisposing to stroke. In this connection it should be mentioned that an investigation from 1986 showed that on the Faroes the cholesterol level had increased a great deal since 1961, being among men aged 40-49 a mean of 6.9 mmol/l in 1986 (Thomsen 1990). It must be taken into consideration also that the number of cases comprised by the present study is so small that the low incidence level for males may be a purely statistical phenomenon.

Arterial hypertension is the main predisposing factor in stroke (Kannel et al. 1976). There is a linear correlation between the severity of hypertension and the incidence of stroke, the higher the hypertension, the greater the risk of stroke. This applies to all age groups and both sexes (Kannel et al 1981). The reason why hypertension is of such great importance in this connection is that it is a very common disease. Whisnant (1984) assessed that among a population over 40 years of age about 30% or more had hypertension. In connection with hypertension, it has also been demonstrated (Kannel et al. 1981) that isolated systolic hypertension, without being accompanied by diastolic hypertension, also poses an increased risk of stroke.

How many persons on the Faroes had hypertension during the period 1962-75 is unknown. The incidence of other diseases causing an increased incidence of stroke is also unknown, apart from the fact that Faroese have approximately the same incidence of diabetes as found elsewhere (Róin 1989). Other diseases increasing the incidence of stroke are atrial fibrillation (Sherman et al. 1984), myocardial infarction, and cardiovalvular diseases (Whisnant 1984). The incidence of these diseases on the Faroes is unknown.

There has never been an investigation of the platelet aggregation in the Faroese. In this connection it is worth mentioning that so far it is not known whether an increased platelet aggregation elicits acute thromboemboli or whether it is a sequel to acute thromboembolic disease (Dougherty et al. 1977).

A dietary study performed in 1937 (Guðjónsson 1939) and an investigation from 1981-82 have demonstrated that dietary habits on the Faroes are different from those in Scandinavia. The Faroese eat more fish and, as a thing quite special, they eat the meat and blubber of the pilot whale (Vestergaard and Zachariassen 1987). It should be mentioned also that in Greenland ischaemic heart diseases are extremely uncommon, and a reduced platelet aggregation has been demonstrated in Greenland Eskimos. According to Dyreberg and Bang (1979) this might be the explanation of the low incidence of cardiovascular diseases among Greenland Eskimos.

In an investigation from the period 1965-68 it was demonstrated that Japanese living in Japan had an incidence of intracranial haemorrhage and thromboembolic stroke 3 times higher than did Japanese domiciled on Hawaii, the predominant cause being hypertension. However, the blood pressure among Japanese in Japan and Japanese on Hawaii was at the same level. It was suggested that the difference in the incidence of stroke might be due to a higher intake of proteins and saturated fat on Hawaii than in Japan (Takeya et al. 1984).

All things considered, it is very difficult to reach any conclusion regarding the role of diet in the occurrence of stroke. It has been demonstrated that the Faroese eat more and more fat (Vestergaard and Zachariassen 1987). From 1937 to 1982 the amount of fat in the daily Faroese diet rose from 31% to about 46%. It has been shown that a high fat content predisposes to a rise in the serum cholesterol level, and that a higher serum cholesterol level increases the incidence of heart diseases, including myocardial infarct. A dietary change in the direction of eating more fat may cause the incidence of heart diseases to rise, and as heart diseases predispose to stroke, this will indirectly give rise to a more common incidence of stroke on the Faroe Islands.

It must be mentioned that on the Faroes it has not been investigated whether there are families having amyloidosis in the cerebral arteries, causing stroke at an early age. In Iceland (Guðmundsson et al. 1972) this has been found to cause a high incidence of intracerebral haemorrhage in the very young, from 0-19 years (Guðmundsson and Benedikz 1977).

Whether the incidence on the Faroes is going to remain low must depend int. al upon how active a treatment is used for hypertension. A high fat content in the diet, especially of saturated fatty acids, may be presumed to predispose to cardiac diseases, which in turn predispose to stroke. Would it also indirectly act as a preventive of cerebrovascular diseases, if the population returns in the future to their previous dietary habits which were demonstrated in 1936-37 (Guðjónsson). At that time the amount of fat in the diet was around 31%. Presumably it is of importance that some of the fat in the diet is derived e.g. from the blubber of the pilot whale, which has a high content of unsaturated fatty acids.

# INCIDENCE OF SUBARACHNOID HAEMORRHAGE ON THE FAROES DURING THE PERIOD 1962-1975

Subarachnoid haemorrhage is one of the very important cerebrovascular diseases, as it carries a high mortality and often occurs in persons of the under-60 age groups. About 25% of people who sustain such a haemorrhage die within 24 hours (Pakarinen 1967). In cases where an aneurysm is demonstrable, the diagnosis of primary subarachnoid haemorrhage is easy, but as pointed out in Guðmundsson's (1973) paper on subarachnoid haemorrhage in Iceland, it is often difficult to decide whether it is primary or secondary. For this reason the reported incidence figures often vary a great deal.

The present investigation aimed at studying in retrospect the incidence of subarachnoid haemorrhage on the Faroes during the period 1962-75. There have not previously been any studies on the incidence of this disease on the Faroes.

## Method and Material

The population figures may be seen from the chapter on primary intracranial neoplasms. Traumatic haemorrhages were excluded.

Subarachnoid haemorrhage is defined as: A condition of acute headache, with or without an affected level of consciousness, but with cervical rigidity. Blood is demonstrable in the subarachnoid space in the form of xanthochromic spinal fluid at lumbar puncture, or blood is demonstrated in the subarachnoid space at autopsy.

Only persons whose haemorrhage occurred from January 1st 1962 to December 31st 1975 are included in the present material.

In retrospect it was not possible to determine whether exacerbation of the disease in the acute stage was due to vasospasms or re-haemorrhage. Therefore, a recurrent haemorrhage was recorded only if another haemorrhage occurred after discharge from hospital. When there is a suspicion of subarachnoid haemorrhage, the patient is admitted to the medical department of the National Hospital in Tórshavn and treated with bed rest, plus medication for arterial hypertension, if present. After bed rest, usually between 4 and 6 weeks, and if transport is considered justified, the patient is transferred to the neurological or neurosurgical department of Rigshospitalet, University of Copenhagen, to have arteriography and if possible treatment of a demonstrated aneurysm.

To find cases of subarachnoid haemorrhage, the di-

agnostic files of the Faroese hospitals were perused under the headings: stroke, aneurysm of cerebral artery, non-specific cerebrovascular disease, arteriovenous malformations, transient cerebral ischaemia, intracerebral haemorrhage, and subarachnoid haemorrhage.

All applications for disability pension and death certificates issued during the period 1962-75 were perused. In all cases but 5 the disease had been confirmed by a xanthochromic spinal fluid. In another 5 cases blood had been demonstrated in the subarachnoid space at autopsy. 19 patients were transferred to Rigshospitalet, Copenhagen, while 5 did not feel up to the voyage and refused, and 3 were not transferred because of advanced age. 13 died before they could be transferred. By reviewing the case records in the Faroese hospitals as well as the neurological departments of Rigshospitalet, Copenhagen, it was ensured that the diagnostic criteria of subarachnoid haemorrhage had been fulfilled. Each patient's general practitioner was asked in Nov./Dec. 1980 whether another haemorrhage had occurred. The National Registry was asked whether the person was alive on 31 st Dec. 1980, and if he/she had died, the date of death.

## Results

### Incidence

During the period 1962-75 subarachnoid haemorrhage occurred in 40 persons (23 females and 17 males). In 10 of them one or more aneurysms were demonstrated, one of them at autopsy on the Faroes. In another 10 patients intracranial aneurysm and arteriovenous malformation were excluded by bilateral carotid angiography. In 21 cases no angiography was performed, either because the patient died before it could be done (13 persons) or because the patient was not referred to Rigshospitalet, Copenhagen, for this examination (5 persons). In 3 cases the angiography was not done because of advanced age.

The annual incidence was 7.4 in 100,000 (confidence limits at 90% 5.3-10.3).

The age-specific incidence increased with advancing age up to 60. In the over-60 age groups the incidence proved lower than in several other studies (Tables VI and VII), being on a level with the findings in England (Brewis et al. 1966) and in Iceland (Guðmundsson 1973). The age-specific incidence for the under-20 age

groups was very low, viz. 0.5 in 100,000, which corresponds to findings in other countries (Tables VI and VII). In the age range 20-25 and up to 60 the age specific incidence was on a level with the results reported from Rochester, Minnesota (Philips et al. 1980), England (Brewis et al. 1966), Iceland (Guðmundsson 1973), and Sweden (Broman et al. 1963). For subarachnoid haemorrhage there was a female preponderance, but the difference is not statistically significant ( $p > 0.05$ ).

### Mortality

Thirteen persons died before angiography could be carried out. Among them there was one intracranial aneurysm and one arteriovenous malformation, both demonstrated at autopsy. 8 patients were treated by ligation or closure of the aneurysm with a clip. Two of the patients died after the operation, while the remaining 6 were alive in December 1980. One patient with an inoperable aneurysm was also alive at that time. Out of the 10 patients who had carotid angiography or four-vessel angiography with no evidence of aneurysm, 8 were alive 5 years later, while 2 had died of diseases other than subarachnoid haemorrhage. None of this group had a rehaemorrhage. Of the 8 patients discharged to their homes without having had angiography, 6 developed fatal re-haemorrhage from 4 months to 3 years after the primary haemorrhage. The remaining 3 were alive in December 1980.

Table V. Subarachnoid haemorrhage diagnosed clinically 1962 through 1975  
Rate of incidence in age groups

Age	Mean population	Total No. of cases	Age-specific incidence rate
0-19 years	15,910	1	0.45 (0.01- 2.5)*
20-39 -	9,708	9	6.7 (3.0 -12.6)*
40-59 -	8,244	19	16.3 (9.2 -27.0)*
60+ -	4,611	11	16.9 (9.0 -28.5)*
All ages	38,523	40	7.4 (5.3 -10.3)*

\*95% confidence limits for rate.

Table VI. Annual age-specific incidences of subarachnoid haemorrhage in 100,000 in various populations in the age groups from 0-14 years up to 65 years and over.  
Study and years of study

Age	Present study 1962-1975	Gothenburg* 1970-1975	Rochester <sup>f</sup> 1945-1975	South Finland <sup>f</sup> 1972-1973
0-14 years	0.6	-	0.2	0.0
15-44 -	5.7	5	4.8	14.5
45-54 -	16.0	24	21.8	39.8
55-64 -	29.0	27	33.8	48.5
65+ -	13.3	-	37.8	85.8
All ages	7.4	-	11.6	23.9

\* This study included only the age groups from 15-65 years.

<sup>f</sup> Annual incidence rate calculated by the present author from data given in the reference.

Table VII. Annual incidence of subarachnoid haemorrhage in 100,000 in the age groups 0-19 years up to 60 years and over in various populations.

Age	Study and years of study				
	Present study 1962-75	Carlisle* England 1955-61	Helsinki* Finland 1954-61	Iceland <sup>f</sup> 1958-68	Mid-Finland <sup>f</sup> 1976-78
0-19 years	0.5	0	0.7	2	1
20-39 -	6.7	8.4	9.7	8	15
40-59 -	16.3	22.6	32.1	18	30
60+ -	13.5	11.7	29.5	14	45
All ages	7.4	10.9	15.7	8.0	19.4

\* Annual incidence calculated by the present author from data given in the reference.

<sup>f</sup> Annual incidence rate estimated from a diagram given in the reference by Fogelholm.

Mortality in the present material of subarachnoid haemorrhage was for all 40 patients 38% two months after onset. This is lower than found in the USA (Sacco et al. 1982). One month after the onset the survival was 50%.

In a Finnish study (Pakarinen 1967) it was 30% 3 weeks after onset.

### Re-haemorrhage

Six of the 25 persons who survived the first haemorrhage and who were discharged to their homes sustained a re-haemorrhage, fatal in all 6 cases. Thus, the incidence of re-haemorrhage at 5 years is 25%.

### Discussion

An incidence lower than that of 7.4 in 100,000 found on the Faroe Islands was reported from Oslo, Norway, where the incidence was 6.0 in 100,000 annually during the period 1950-54 (Kristiansen 1956). Higher levels have been found in Sweden for the period 1956-59 (Broman et al. 1963). In Iceland the rate was a little higher than on the Faroes, viz. 8.0 in 100,000 annually during the period 1958-68 (Guðmundsson 1973). However, these differences are not statistically significant ( $p > 0.05$ ). A study from Rochester, Minnesota, for the period 1955-61 revealed a significantly higher incidence ( $p < 0.05$ ), viz 10.9 (Philips et al. 1980). Considerably higher incidences ( $p < 0.05$ ) have been found in 3 Finnish studies. In Helsinki for the period 1954-64, the incidence was 15.7 (Pakarinen 1967), in Mid-Finland 19.4 for the period 1976-78 (Fogelholm 1981), and in southern Finland much higher, viz 23.9 in 100,000 annually during the period 1952-73 (Aho 1975).

The conclusion of the present study is that the incidence of subarachnoid haemorrhage on the Faroes is on a level with findings in Norway, Sweden, England and Iceland.

As autopsy was not routinely done on the Faroes during the period 1962-75, the values found must be considered minimum figures. It is an interesting finding that only about half the patients with subarachnoid

haemorrhage were admitted to a neurological or neurosurgical department, either because they were not in a state to be transported or because such transport was not considered advisable because of advanced age.

The somewhat low incidence on the Faroes may be due to purely statistical factors, as the number of cases is very small. The age-specific incidence for the over-60 age groups proved very low in the present investigation. This low rate, therefore, may be due to some cases in this age group having been diagnosed as intracerebral haemorrhage. Besides, some persons over 60 years of age with subarachnoid haemorrhage may have died at home before any medical treatment could be instituted and without any diagnosis being made. In this connection it may be mentioned that in the Rochester, Minnesota, study (Philips et al. 1980) 9% of the patients died of subarachnoid haemorrhage before medical treatment had been instituted. In the under-60 age groups autopsy is generally done on the Faroes in cases of unexpected deaths, as a link in the coroner's inquest. In this age range, therefore, the correct diagnosis is usually disclosed. As the Faroese population has many young people, about 40% being younger than 20 years, and as the incidence in these age groups is very low, this is yet another explanation why the incidence is lower than in most studies. However, this does not apply to the Icelandic population which is of an age composition like the Faroese (Demographic Yearbook 1981).

It may be concluded that the incidence of subarachnoid haemorrhage in the under 20-age groups is at the same level as in other studies, viz. around 0.5 in 100,000 per annum, except in Iceland where it was 2 (Tables VI and VII), but in the over-60 age groups it is

much lower than found elsewhere except in England (Brewis et al. 1966) and in Iceland (Guðmundsson 1973).

In Finland the incidence in the 15-20-year age group and right up to the age of 60 is much higher than on the Faroes (Tables VI and VII). In this latter age group the Faroese incidence is at the same level as in Sweden, in Rochester, Minnesota, in England, and in Iceland (Tables VI and VII). In spite of the small numbers involved in the present study, it is of interest that, as in Finland (Pakarinen 1967), it was found that if the patient had an operation for the aneurysm the prognosis was good. For patients not examined by angiography and discharged without treatment of a possible aneurysm, the prognosis was poor. It is possible that those who had a re-haemorrhage soon after discharge have had an aneurysm which started bleeding again.

Subarachnoid haemorrhages make up a special group within cerebrovascular diseases. In this connection it is of importance that while elsewhere, e. g. in the USA (Whisnant 1984), the incidence of primary intracerebral haemorrhages and of ischaemic infarcts has been on the decrease, such a declining incidence has not been demonstrable for subarachnoid haemorrhage (Whisnant 1984). The reason for the falling incidence of stroke is according to Whisnant (1984) improved treatment of arterial hypertension.

In the under-40 age groups subarachnoid haemorrhage made up about half of all Faroese cases of stroke. According to the present findings, about 4 persons per annum are expected to sustain subarachnoid haemorrhage on the Faroe Islands.

# INCIDENCE AND PREVALENCE OF EPILEPSY ON THE FAROES DURING THE PERIOD 1970-1980

As regards the requirement for expertise within neurology, in this case epileptology, it is of the utmost importance to know the prevalence of epilepsy in a population and how many new cases may be expected each year. The frequency of epilepsy has not previously been studied on the Faroe Islands. To ascertain how many individuals had epilepsy on 31st December 1980, and how many new cases occurred annually during the period 1970-1980, the present study was instituted. Another object was to establish the incidence and prevalence of the various types of epilepsy according to the international classification approved by WHO in 1969 (Merlis 1970). It has previously been demonstrated that between 2% and 4% of a population will have recurrent convulsions without fever at some time of their lives (Hauser and Kurland 1975). This shows that epilepsy is of great social significance.

## Method and Material

In the present study a seizure is defined as in Hauser and Kurland's (1975) study from Rochester, Minnesota: An attack caused by paroxysmal neuronal hyperactivity in the brain. It can manifest itself in a sudden change in consciousness, a change in the way the person interprets his/her surroundings, or as an unusual response to the surroundings. It may also be manifest as focal or systemic contractions in the limbs.

Epilepsy has been defined as a condition in which seizures recur chronically without any action by strong provocative factors. This is due to existing, or possibly progressive structural physiological changes in the cerebral tissue. If there is a question of an isolated, unprovoked seizure, or convulsions provoked by fever, alcohol, stress or drugs, the case is not included as epilepsy. The same applies to convulsions time-related to acute systemic metabolic changes, such as hypoglycaemia, uraemia, drug poisoning, or alcohol abstinence. Convulsions occurring in conjunction with acute cerebral disease, e. g. infarction or cranial injury are also not included as epilepsy. Cases of epilepsy in a population are considered to occur according to a Poisson distribution. Therefore, the 95% confidence limits were calculated according to the formula:

$$\text{If } x_0 < 100: X_+, X_- = X_0 \pm 0.5 + \frac{U_m^2 \pm U_m}{2} \sqrt{X_0 \pm 0.5 + \frac{U_m^2}{4}}$$

$$\text{If } x_0 \geq 100: X_+, X_- = X_0 \pm U_m \sqrt{X_0}$$

$X_0$  = number of cases of epilepsy.  
 $U_m = 1.96$  (Poisson distribution).

During the early part of the period under study, on January 1st 1970, the population on the Faroes was 38,612 (Report from the Chief Administrative Office 1969). In 1975 it was 41,211, and at the end of the study period, in December 1980, it was 43,609. The mean population during the period, then, was calculated as the mean of these figures. The percentage age distribution was calculated according to the census figures from 1970 and 1977 (cf. Table VIII).

Whenever there is a suspicion of epilepsy or seizures, the person is generally referred for an EEG tracing. On the Faroes there is one EEG laboratory, viz. in the National Hospital in Tórshavn.

When a person is referred for this investigation, a card is filled in with personal data, the history, and information about the seizures, when they occurred and what type they were. In the search for persons with a history of active epilepsy during the period 1st January 1970 - 31st December 1980, all these index cards were perused. Active epilepsy means that a seizure has occurred within the past 5 years. All general practitioners on the Faroes were asked about the names and birth dates of patients with epilepsy in their practice and about persons suspected of epilepsy. Patients admitted with epilepsy are primarily referred to the medical department of the National Hospital in Tórshavn. If it is felt that there is, in a few cases, an indication for further investigation, the patients are transferred to the neurological department of Rigshospitalet, University of Copenhagen. The diagnostic files of the National Hospital, Tórshavn and of the neurological department, Rigshospitalet, were scrutinized for the diagnoses seizures and epilepsy. In the course of this scrutiny it was established whether the criteria of the diagnosis epilepsy had been fulfilled and the type of epilepsy was determined according to the WHO classification (Merlis 1970). The incidence study includes patients who developed epilepsy during the period from January 1st 1971 to December 31st 1980. The prevalence material comprises all persons alive with active epilepsy as per 31st December 1980.

The National Registry was asked whether persons

included in the study were alive and domiciled on the Faroes as per 31st December 1980.

## Result

### Incidence

During the period 1st January 1970 to 31st December 1980 epilepsy occurred in 194 persons (118 males and 76 females). This means an incidence of 42 in 100,000 (95% confidence limits 33-49).

The present study showed that the incidence among males was 50, i. e. higher than among females in whom it was 35 in 100,000 per annum. The age specific incidences are given in Table VIII. The incidence decreases with advancing age.

Classified according to the international classification from 1969 the various types of epilepsy among the 194

cases are listed in Table IX. The most common type was primary generalized grand mal, in 14.8, the second in frequency partial complex epilepsy, in 11.3 per 100,000 annually.

### Prevalence

On the prevalence day, 31st December 1980, a total of 333 persons had epilepsy (175 males and 157 females) in the population of 43,609 persons, i.e. 763 in 100,000. There was a male preponderance, and the highest age-specific prevalence was found in the age groups 10-19 and 40-59 years. The most common type was primary generalized epilepsy having a prevalence of 291, and next in order partial complex epilepsy having a prevalence of 215 per 100,000. The prevalence of other types of epilepsy is set out in Table XI.

Table VIII. Incidence of epilepsy in 100,000, by age at diagnosis, 1970-1980 in the Faroes.

Age	Mean population	Males	Females	Total No. of cases	Age-specific incidence rate
0- 1 years	717	9	7	16	202.9 (114.1- 329.7)*
1- 9 -	6,703	27	27	54	73.2 ( 55.6- 94.9)*
10-19 -	7,973	31	20	51	58.4 ( 43.5- 76.7)*
20-39 -	11,728	25	14	39	30.1 ( 21.6- 41.0)*
40-59 -	7,978	18	6	24	27.3 ( 17.1- 41.0)*
60- -	6,045	8	2	10	15.0 ( 7.5- 27.1)*
All ages	41,144	118	76	194	42.8 ( 36.5- 50.5)*

\*95% confidence limits for rate.

Table IX. Incidence of epilepsy in the Faroes, 1970-1980, by seizure types, according to the classification of the International League Against Epilepsy (1969).

Clinical types	No of cases	Relative frequencies	Incidence rate per 100,000 per annum
Number of unclassifiable cases	19	9.8%	4.2 ( 2.4- 6.6)*
Number of classifiable cases	175	90.2%	38.7 (32.5- 46.2)*
1. Generalized epilepsies	76	39.2%	16.8 (13.3- 21.0)*
A. Primary generalized epilepsies:	67	34.5%	14.8 (11.3- 18.8)*
Grand mal	59	30.4%	13.0 ( 9.9- 16.8)*
Petit mal	3	1.5%	0.7 ( 0.0- 1.9)*
Juvenile myoclonus	5	2.6%	1.1 ( 0.4- 2.6)*
B. Secondary generalized epilepsies:	9	4.6%	2.0 ( 0.9- 3.8)*
West syndrome	4	2.1%	0.9 ( 0.2- 1.9)*
Lennox-Gastaut syndrome	4	2.0%	0.9 ( 0.2- 1.9)*
Others (Progressive Myoclonus Epilepsy)	1	0.5%	0.2 ( 0.0- 1.2)*
2. Partial epilepsies	99	51.0%	21.9 (17.9- 26.7)*
A. With elementary symptomatology	23	11.9%	5.1 ( 3.3- 7.7)*
B. With complex symptomatology	51	26.3%	11.3 ( 8.4- 14.8)*
C. With secondarily generalized seizures (grand mal alone)	25	12.9%	5.5 ( 3.5- 8.2)*
All cases	194		42.8 (36.5- 50.6)*

\*95% confidence limits for rate.

Table X. Prevalence of epilepsy in 100,000, by age at diagnosis, in the Faroes, on December 31, 1980.

Age	Mean population	Males	Females	Total No. of cases	Age-specific prevalence rate
0-9	7,849	19	13	32	407.7 (279.0- 575.9)*
10-19	8,417	38	36	74	879.2 (690.3- 1,103.7)*
20-39	12,472	55	54	109	874.0 (675.1- 1,111.3)*
40-59	8,460	38	33	71	839.2 (656.0- 1,059.1)*
60-	6,411	26	21	47	733.1 (538.1- 974.9)*
All ages	43,609	176	157	333	763.6 (678.8- 862.9)*

\*95% confidence limits for rate.

Table XI. Prevalence of epilepsy in the Faroes, on December 31, 1980, by seizure types, according to the classification of the International League Against Epilepsy (1969)

Clinical types	No of cases	Relative frequencies	Prevalence rate per 100,000
Number of unclassifiable cases	25	7.5%	57.3 ( 37.1 - 84.6)*
Number of classifiable cases	308	92.5%	706.3 (620.3 - 806.5)*
1. Generalized epilepsies	138	41.4%	316.4 (257.0 - 390.2)*
A. Primary generalized epilepsies:	127	38.1%	291.2 (234.6 - 362.1)*
Grand mal	109	32.7%	249.9 (196.0 - 318.2)*
Petit mal	10	3.0%	22.9 ( 11.0 - 42.2)*
Juvenile myoclonus	8	2.4%	18.3 ( 7.9 - 36.1)*
B. Secondary generalized epilepsies:	11	3.3%	25.2 ( 12.6 - 45.1)*
West syndrome	4	1.2%	9.2 ( 2.5 - 23.5)*
Lennox-Gastaut syndrome	6	1.8%	13.8 ( 5.0 - 30.0)*
Others	1	0.3%	2.3 ( 0.1 - 12.8)*
2. Partial epilepsies	170	51.1%	389.8 (333.4 - 453.1)*
A. With elementary symptomatology	29	8.7%	66.5 ( 44.5 - 95.4)*
B. With complex symptomatology	94	28.2%	215.6 (174.3 - 263.7)*
C. With secondarily generalized seizures (grand mal alone)	46	13.8%	105.5 ( 77.2 - 140.7)*
Others	1	0.3%	2.3 ( 0.1 - 12.8)*
All cases	333		763.6 (678.8 - 862.9)*

\*95% confidence limits for rate.

## Discussion

According to the present findings about 18 persons of the Faroese population develop epilepsy per annum, and the annual incidence is 42 in 100,000.

If cases of febrile convulsions and a few unprovoked seizures are included in the incidence material, and these two types were of the same frequency on the Faroes as in the USA, the incidence level on the Faroes would have been around 100 per 100,000 annually. This is because febrile convulsions showed an incidence of 35 and an isolated seizure of 25 in 100,000 per annum (Hauser and Kurland 1975). Thus, the number of persons having the first seizure is far larger than that of the annual number of diagnosed cases of epilepsy, the number of those having a seizure for the first time being about twice the number developing epilepsy per annum.

A significantly lower incidence of epilepsy has been reported from Denmark 30.4 (Juul-Jensen and Ipsen 1975), from Norway 32.8 (De Graaf 1974), and from Iceland 25.9 (Guðmundsson 1966) ( $p < 0.05$ ).

The Faroese findings cannot be compared with those from England (Brewis et al. 1966), as epilepsy secondary to organic cerebral disease was excluded from the English material. A Scottish investigation (Crombie et al. 1960) revealed much higher figures than the Faroese ones, but then it included as epilepsy cases with a history of only one seizure as well as febrile convulsions.

The Faroese population is young, about 40% being under 20 years of age. Since the age-specific incidences are higher in the youngest age groups, this contributes to a higher incidence in the population as a whole than in a population having a larger proportion of older people. However, the lower incidence found in Iceland (Guðmundsson 1966) cannot be explained by the age distribution in the population, as it is very similar to the Faroese (Demographic Yearbook 1981).

The present study was done in retrospect, and accordingly the data on seizures are from case records, often written by doctors with no special interest in or knowledge of epileptic seizures. Consequently, it cannot be

ruled out that in the present study there may be a question of some over-diagnosis. It is in fact possible that a few patients with lipothymia, hysterical convulsions, cardiovascular attacks in the elderly, and affect convulsions in the younger age groups may have been diagnosed as epilepsy. As it must be taken for granted that all persons having had a seizure giving rise to a suspicion of epilepsy are referred for EEG, and as all record cards for these tracings have been perused, there can hardly have been a question of any underdiagnosis in the present study. It was demonstrated by a study in Warsawa, Poland (Zielinski 1976) that about 25% of all persons with seizures had never been in touch with a doctor, but this must be assumed to be unlikely on the Faroe Islands.

A higher male preponderance has been found in Northern Norway (De Graaf 1974) and in Iceland (Guðmundsson 1966) than on the Faroes. In Denmark the incidence is about the same in both sexes (Juul-Jensen and Ipsen 1975). The present study showed, as did the studies in Norway and Denmark, that the incidence decreased with advancing age. In an Italian investigation (Granieri et al. 1983) the incidence material is not classified according to the classification from 1969 but according to the more recent classification from 1981 (Bancaud et al. 1981). On the Faroes a larger number, viz. 51% had partial epilepsy than in Italy where this figure was only around 32% (Granieri et al. 1983). In the American study by Hauser and Kurland (1975) the ratio of partial to primary epilepsy proved to be approximately the same as on the Faroes. In the American material 53% had partial and 43% generalized epilepsy. It has not been possible to find any reason why the incidence of partial epilepsy is higher than found in Italy (Granieri et al. 1983).

### Prevalence

The prevalence of epilepsy on the Faroes was determined as 763 in 100,000.

In other studies the prevalence has proved somewhat lower, in Northern Norway 350 (De Graaf 1974) and in Iceland 360 in 100,000 (Guðmundsson 1966), both of which differ significantly ( $p < 0.05$ ) from the Faroese findings. Prevalence values which do not differ significantly from the Faroese ones ( $p > 0.05$ ) have been found in Denmark, viz. 690 in 100,000 (Juul-Jensen and Ipsen 1975). Both in Iceland and in Norway the sex-specific prevalence was higher for males than for fe-

males. In the present study there was no significant sex difference as regards the prevalence ( $p > 0.05$ ).

The Faroese prevalence is higher than that in e. g. Iceland. As mentioned in the discussion on the incidence material, it cannot be definitely ruled out that there may have been a question of some over-diagnosis in the present material. If an overdiagnosis is to be avoided in a future investigation, it must be prospective, and preferably the same physician should interview and examine all the patients, as was done in e. g. the Icelandic study (Guðmundsson 1966).

A more recent Danish study (Juul-Jensen and Foldspang 1983) has reported a much higher prevalence of epilepsy than found in the present study, but the criteria of epilepsy are different, as convulsions in cases of poisoning and abstinence are included as epilepsy. One of the present objects was to compare the classification values on the Faroes with those from a study in Odense, Denmark (Alving 1978), in which the classification was according to the 1969 criteria, and this was one of the reasons why these criteria were used here. In cases of doubt about the type of convulsion, or if there were conflicting data, the case in question was taken to be unclassifiable (Table XI). In the Odense study epilepsy was classified on the basis of material from an epilepsy clinic, and partial epilepsy was very common, viz. 73.5%. However, the comparison with this investigation must be made with the reservation that the Odense study included only persons over 15 years of age. But there is no doubt that the most severe cases of epilepsy are partial and therefore must be over-represented in materials from an epilepsy clinic, whereas a study comprising an entire population also includes the quite mild cases of epilepsy, in particular primary generalized grand mal.

In the Faroese study the prevalence of partial epilepsy was significantly higher ( $p < 0.05$ ) than in Italy, viz. 51% against 32%. In the Rochester, Minnesota, study the ratio of partial to generalized epilepsy was approximately the same as in the present study (Hauser and Kurland 1975).

The conclusion of the present study must be that with the diagnostic possibilities afforded by the health service and with the current possibilities of registration, there occurred 194 cases of epilepsy on the Faroes during the period 1970-1980. On the prevalence day, 31st December 1980, 333 persons of the Faroese population had active epilepsy, partial in 51%, generalized in 41%, while 7.5% could not be classified in retrospect.

It is concluded that numerically epilepsy is an important disease on the Faroe Islands.

# APPENDIX

## INCIDENCE OF DISABILITY CAUSED BY NEUROLOGICAL DISEASES ON THE FAROE ISLANDS DURING THE PERIOD 1939-1975

As one link in the search for persons suffering from diseases included in the incidence studies reported above, all medical certificates in connection with applications for disability pension and early retirement pension for the period 1939-1975 were perused. In the course of this scrutiny all persons awarded disability pension or early retirement pension during the period 1939-1975 were recorded. It was also recorded which neurological disease had been the cause of the disability and the time when the person had been awarded the pension. As neurological diseases the author listed all diseases affecting the brain, brain stem, cranial nerves, peripheral nerves, and neuromuscular diseases. The number of people on the Faroe Islands who had been disabled by this group of diseases had not previously been investigated.

### Method and Material

A total of 6,200 medical certificates, which was the number issued during the period 1939-1975, were perused, and the patients whose disability was due to a neurological disease were recorded. In this connection, it must be mentioned that no evaluation was made of whether the diagnosis was correct, neither from other sources nor from the medical certificate in the file on the patient.

This search was carried out during the autumn of 1975. The incidence for the period 1939-1975 was analysed. An analysis was also made of how many persons developed a disabling neurological disease during three 10-year periods and one 5-year period (Table XII).

### Result

Table XII lists the annual incidence of disability on the Faroes due to neurological diseases. The individual diseases are listed in Table XIII.

It was found that 30-50 persons per 100,000 of the population were annually awarded disability pension or early retirement pension because of neurological diseases. The number for the period 1939-1949 may be seen from Table XII. It will be seen that the incidence for the periods 1939-1949 and 1960-69 is somewhat lower than from 1950-59 and 1970-75. Thus, out of a mean population of 40,000 between 13 and 20 obtain disability pension or early retirement pension because of these diseases each year. With regard to the individual

diseases, it is apparent that chronic encephalitis was the most common cause in the early part of the period, viz. 1939-49.

From 1959 and onwards poliomyelitis was no longer detected. Stroke became an ever more common cause of disability.

During the period 1939-49 stroke made up 13% of all causes of disability, while in 1970-75 its rate had increased to about 36%. Besides, it will be seen that birth-conditioned encephalopathy was decreasing, but it must be taken into consideration that the numbers are small, so there may be a question of a purely statistical phenomenon. Paralysis agitans increased as a cause of disability, from 7.7% in 1939-49 to 13% in 1970-75.

It was demonstrated also that diseases such as meningocele, amyotrophic lateral sclerosis, and progressive muscular dystrophy did occur as causes of disability, but not in large numbers.

From 1950 arterial aneurysms were diagnosed.

Table XII Average annual incidence rates of neurological diseases causing disability per 100,000 Faroese in 1939-1975

Periods	Incidence
1939-1949	31.5 (25.0 - 37.0)
1950-1959	48.5 (41.3 - 55.4)
1960-1969	36.5 (30.4 - 42.5)
1970-1975	44.7 (40.0 - 53.5)

\*95% confidence limits for rate.

### Discussion

In the introduction it was stated that the diseases were recorded according to the diagnosis on the medical certificate without investigating whether or not this diagnosis was correct.

Many diagnoses had not been made by neurological specialists, so that there may have been diagnostic errors in the material. For instance, no case of paralysis agitans was diagnosed in the period 1939-49, and it is therefore possible that several cases of parkinsonism have been diagnosed as chronic encephalitis. During the total period there had been 500 applications for disability pension or early retirement pension approved because of neurological diseases. In other words, about 8% of the cases were neurological diseases of a severity giving the right to receive disability aid.

However, this analysis does not include all persons

Table XIII. Number of neurological diseases causing disability in the Faroes 1939 through 1975

Disease	1939 -49	1950 -59	1960 -69	1970 -75	1939 -75
Chronic encephalitis	27	11	2	0	29
Cerebrovascular diseases	12	35	48	33	129
Sequelae to acute poliomyelitis	17	11	2	0	29
Intracranial neoplasm	6	8	15	8	37
Myelopathy	4	0	3	1	8
Seq. to birth-conditioned encephalopathy	7	19	6	5	37
Congenital hydrocephalus	0	4	1	1	6
Polyneuritis	3	7	8	1	19
Multiple sclerosis	6	17	4	1	28
Paralysis agitans	0	13	11	12	36
Meningocele	0	0	2	1	3
Sequelae to meningoencephalitis	2	3	2	0	7
Amyotrophic lateral sclerosis	0	1	2	3	6
Anoxia and traumatic encephalopathy	0	1	2	0	3
Progressive muscular dystrophy	0	3	2	1	6
Epilepsies	12	24	21	16	73
Arachnoiditis	0	2	0	0	2
Slipped discs	2	7	6	5	20
Cranial dyssynostosis	0	1	0	0	1
Cerebral aneurysm	0	1	6	4	11
All cases	99	168	141	92	500
Population at the end of each period	31,781	34,596	38,611	41,112	41,112

who became disabled because of neurological diseases. Persons over 67 years of age receive old-age pension,

and if they develop a neurological diseases, there will be no application for disability pension or early retirement pension. And if a person contracts an acute neurological disease, fatal during the acute phase, there has usually not been time to apply for disability pension. As to patients with epilepsy and slipped disc, it should be borne in mind that most such patients are able to work and are therefore not included in this analysis.

Certain neurological diseases, which are on the whole so disabling that the patients are entirely unable to work, were not found in this investigation. This applies to e. g. myotonic dystrophy, syringomyelia, progressive spinal muscular atrophy, hepatolenticular degeneration, myasthenia gravis, familial ataxia, and Huntington's chorea. It must be concluded, therefore, that these diseases were not diagnosed as causes of disability in the Faroese populations during the period 1939-75.

It has not proved possible to bring to light similar investigations from other populations. Therefore, the present results cannot be compared with findings from other countries. In conclusion, it is apparent that the frequency of neurological diseases causing disability has been on the same level from 1950-75. It has also been demonstrated that neurological diseases constituted a numerically important cause of disability among the Faroese population during the period in question.

# SUMMARY

The object of the investigations reported in this paper was to ascertain the incidence of the neurological diseases which were thought to be most common on the Faroe Islands. These diseases are cerebrovascular diseases, primary intracranial neoplasms, and epilepsy.

The Faroe Islands must be considered well-suited for epidemiological studies, the population being well-delimited and fairly stable with respect to immigration and emigration. That it is also ethnically well-defined has been confirmed by anthropological studies. The sources used to find persons that might have one of the diseases to be recorded were: Diagnostic files in the three Faroese hospitals, medical certificates in conjunction with applications for disability pension or early retirement pension, and certificates issued during the period 1962-1980, the cancer registry, and the card index on electroencephalographic investigations in the National Hospital, Tórshavn.

The Faroese population is believed to be descended from Norwegians and Celts who settled on the islands during the latter part of the 9th century A. D., at the same time as the settlement of Iceland. Anthropological studies indicate that on the whole the Faroese population most resembles the Icelandic one. In January 1962 the population numbered 35,748 and in December 1980 it had increased to 43,609. In 1987 only 2,429 of the persons domiciled on the islands had been borne outside the Faroes. The nation is a young one, 37.4% being under 20 years of age and 14.7% over 60. This age distribution is like that found in Iceland. Causes of death on the Faroes resemble those in the Scandinavian countries: 22% die of cancer, 35% of cardiovascular or other cardiac diseases, and 11% of cerebrovascular diseases. During the period 1971-74 the mean life expectancy on the Faroes was 72.4 years for men and 76.7 years for women.

The first part of the present studies dealt with the incidence of primary intracranial neoplasms during the period 1962-75. The author could trace 52 cases of primary intracranial neoplasm (35 in males and 17 in females). The incidence was 9.9 in 100,000 (95% confidence limits 7.5-12.8). Out of the 52 patients with primary intracranial neoplasms 20 were alive as per 31st December 1979. It was concluded that each year about 5 persons on the Faroes must be assumed to develop primary intracranial neoplasm.

The second part of the studies concerned the incidence of stroke on the Faroes during the period 1962-75. From January 1st 1962 to December 31st 1975 stroke occurred in 74 men and 71 women. This is an incidence of 45.7 in 100,000 in the age range 15-65 years (95% confidence limits 33-55). Among these cases 34 were subarachnoid haemorrhage and 111 were other types of stroke. It was demonstrated that the incidence in men aged 45-64 years is lower than that found in Denmark, Finland, Sweden, and USA. The Faroese have dietary habits different from those in the Scandinavian and other Western European countries. Faroese people eat more fish and, a very special feature, they eat the meat and blubber of pilot whales. It was mentioned that arterial hypertension is the most common factor predisposing to stroke, but it is unknown how many people on the Faroes have hypertension.

The third part of the studies was carried out to establish the incidence of subarachnoid haemorrhage on the Faroes. It had occurred in 40 persons during the period in question, viz. an incidence of 7.5 per annum in 100,000 (95% confidence limits 5.3- 10.3). The age-specific incidence in the age groups from 15-25 years was on a level with that found by investigators in Sweden, Rochester, Minnesota, England, and Iceland, but lower than findings in Finland. The age-specific incidence in persons over 60 was much lower than in Sweden, Rochester, Minnesota, and Finland. The incidence in the total population was on a level with that found by Guðmundsson in Iceland, viz. 8.0 in 100,000 persons per annum. In the present study the survival at 1 month after onset was 50%. It is concluded that subarachnoid haemorrhage is the most common cause of stroke in young persons, i. e. under 40 years of age, and according to the present findings 4 persons per annum can be expected to sustain subarachnoid haemorrhage on the Faroes.

The object of the fourth part of the studies was to ascertain the incidence and prevalence of epilepsy on the Faroes during the period 1970-80. Like the other parts of the study, it was retrospective. During the period 1st January 1970 to 31st December 1980 a total of 194 persons developed epilepsy, i. e. an incidence of 42 in 100,000 of the population per annum (95% confidence limits 33-49). These 194 cases were classified according to the WHO 1969 classification, and the incidence of the

various types is shown in Table IX. The most common type was primary generalized grand mal, incidence 14.8, the next most common partial complex epilepsy, incidence 11.3 in 100,000 per annum. On the prevalence day, 31st December 1980, 333 persons were suffering from epilepsy (176 males and 157 females) in the population of 43,609. This is a prevalence of 763 in 100,000 (95% confidence limits 678.8 - 862.0). The most common type of epilepsy was primary generalized epilepsy, prevalence 291 and the next most common, partial complex epilepsy, prevalence 315 in 100,000. The prevalence of the other types of epilepsy is shown in Table X. It is concluded that during the period 1970-1980 a total of 194 persons contracted epilepsy, and on the prevalence day 31st December 1980, 333 persons on the Faroes had active epilepsy. It is concluded that epilepsy is a numerically important disease on the Faroes.

One link in the research into the incidence of the above-mentioned diseases was the perusal of all medical

certificates concerning applications for disability pension and early retirement pension from the period 1939-75. 6,200 medical certificates issued during that period were perused and the neurological diseases recorded. It was found that about 30-50 persons in 100,000 of the population are awarded disability pension or early retirement pension per annum because of neurological diseases. These diseases are listed. It is stated among other things that chronic encephalitis and sequelae to acute poliomyelitis were no longer found as causes of disability during the latter part of the study period in which cerebrovascular diseases were the most important cause of disability. It was noted also that Parkinson's disease, as a cause of disability, increased relatively from the period 1939-49 to the period 1970-75. It is concluded that neurological diseases were numerically important causes of disability in the Faroese population during the period in question.

# SAMANDRÁTTUR

Endamálið við kanningunum, umröddar eru í hesum bóklingi, var at staðfesta tíðleikan av teimum nervafrøðiligu sjúkunum, sum vóru hildnar at vera vanligastar í Føroyum. Hesar sjúkur eru heilæðrasjúkur, nývöktur innanskalla og epilepsi.

Hildið verður, at Føroyar eru væl hóskandi til epidemiologiskar kanningar, av tí at tað snýr seg um eina vælavmarkaða fókamongd, sum er rættiliga stöðug viðvíkjandi frá- og tilflytan. Eisini snýr tað seg um ein tjóðfrøðiliga vælavmarkaðan fólkapólk, staðfestan við mannfrøðiligum kanningum. Tær ymisku keldurnar, sum hava verið nýttar at finna sjúklingar fram, sum kundu haft eina av teimum sjúkum, sum málið var at skráseta, eru nevndar. Hesar keldur eru sjúkuavgerðarsövnini á teimum trimum føroysku sjúkrahúsunum, læknvátanir viðvíkjandi avlamnispensión ella fólkapensión fyri tíð, deyðavátanir skrivaðar á tíðarskeiðinum 1962-1980, skrásetningarsavn yvir persónar við nývöktstri, og skrásetningarsavn yvir elektroencefalografiskar kanningar á Landssjúkrahúsinum, Tórshavn.

Fólkið í Føroyum verður hildið at stava frá norðmonnum og keltum, sum búsettust í oyggjunum seinast í níggjundu öld, um somu tíð, sum búsetingin í Íslandi fór fram. Mannfrøðiligar kanningar benda á, at sum heild líkist fólkið í Føroyum mest íslendingum. Í januar 1962 var fólkatalið 35.748 og í desember 1980 var talið 43.609. Í 1987 vóru bert 2.429 fólk, búsett í Føroyum, sum vóru fœdd uttan fyri Føroyar. Um tað føroyska fólkið er að siga, at tað snýr seg um eina unga tjóð við 37,4% av fólkinum undir 20 ár og 14,7% yvir 60 ár. Aldurssamansetingin er lík henni í íslenska fólkinum. Talið á deyðum, fyri Føroyar, er lutfallsliga, sum í hinum norðurlondum, 22% doyggja av illvöktstri, 35% av hjartaæðrasjúkum og 11% av heilæðrasjúkum. Í tíðarskeiðnum 1971-1974 var miðal livialdurin í Føroyum 72,4 ár fyri mannfólk og 76,7 fyri konufólk.

Hin fyrsta umrödda kanning snýr seg um tíðleikan av innanskalla primerum nývöktstrum í tíðarskeiðinum 1962-1975. Funnir vóru 52 tilburðir av innanskalla primerum nývöktstrum (35 mannfólk og 17 konufólk). Hin árligi tíðleikin var sostatt 9,9 per 100.000 (7,5 -12,8 sannlíkindamark við 95%). Av teimum 52 sjúklingunum við innanskalla primerum nývöktstrum vóru 20 á lívi hin 31 desember 1979. Samanumtikið er niðurstöðan av kanningini, at umleið 5 fólk um árið finga innanskalla primeran nývöktstur.

Onnur kanningin umrödd í hesari ritgerð, snýr seg um at staðfesta tíðleikan av slag (apoplexia cerebri) í Føroyum í tíðarskeiðinum 1962-1975. Funnid varð, at í tíðarskeiðinum 1. januar 1962 til 31. desember 1975 finga 74 mannfólk og 71 konufólk slag. Tíðleikin fyri slag verður sostatt 45,7 per 100.000 um árið í aldursbólkinum 15-65 ár (33,0-55,0 sannlíkindamark við 95%). Tríatífýra finga heilahinnublöðing, meðan onnur slög av slag komu fyri hjá 111 persónum. Víst verður á, at tíðleikin hjá monnum frá 45-64 ár er lægri, enn funnið í Danmark, Finlandi, Svøríki og USA. Víst verður á, at føroyingar hava øðrvísi kostvanar enn fólk í Skandinavia og í teimum Vestur Europeisku londunum. Føroyingar eta meiri fisk, og sum nakað sermerkt verður etið tvöst og spik av grindahvali í Føroyum. Víst verður á, at hækkað blóðtrýst er tann mest vanligi fremjandi orsök til at fáa slag, men hvussu nógvir føroyingar hava ov høgt blóðtrýst er ókent.

Triðja umrödda kanningin var gjörd fyri at finna tíðleikan av heilahinnublöðing í Føroyum. Funnid varð, at heilahinnublöðing kom fyri hjá 40 fólki í tíðarskeiðinum 1962-1975. Tíðleikin var sostatt 7,4 per 100.000 um árið (5,3-10,3 sannlíkindamark við 95%). Hin aldurseykendi tíðleikin í aldursbólkinum frá 15-25 til 60 ár var á somu hædd, sum funnið var við kanningum í Svøríki, Rochester, USA, Englandi og Íslandi, men lægri enn funnið varð við kanningum í Finlandi. Hin aldurseykendi tíðleikin hjá fólki yvir 60 ára aldur, var nógv lægri enn í Rochester, USA og í Finlandi. Tíðleikin av heilahinnublöðing fyri tað føroyska fólkið var á somu hædd, sum funnið varð við kanning í Íslandi, har funnið varð, at tíðleikin var 8,0 per 100.000 fólk um árið. Tey sum livdu sjúkuna av vóru, í hesari kanning funnin at vera 50% roknað ein mánað eftir, at sjúkan var byrjað. Samanumtikið verður niðurstöðan at heilahinnublöðing er hin vanligasta orsök til slag hjá ungum fólki undir 40 ára aldur, og samsvarandi hesari kanning munnu væntandi 4 persónar um árið fáa heilahinnublöðing í Føroyum.

Fjórða kanningin umrödd í hesari ritgerð fór fram til at staðfesta tíðleika og útbreiðslu av epilepsi í Føroyum í tíðarskeiðinum 1970-1980. Kanningin var, eins og hinar áður umröddu, afturlítandi. Í tíðarskeiðinum 1. januar til 31. desember 1980 finga 194 persónar epilepsi. Tíðleikin var sostatt 42,0 per 100.000 um árið (33,0-49,0 sannlíkindamark við 95%). Teir 194 tilburðirnir vórðu flokk-

aðir eftir altjóða flokkanini frá 1969 og teir ávístu árliku tíðleikarnir av teimum ymisku epilepsislögunum síggjast í talvu IX. Hin vanligasta epilepsi var primer generaliserað grand mal, við einum tíðleika á 14,8, meðan hin næst vanligasta var partiel komplex epilepsi við einum tíðleika á 11,3 per 100.000 um árið. Útbreiðsludagin, hin 31. desember 1980, hövdu 333 persónar epilepsi (176 mannfólk og 157 konufólk) í fólkinum, sum taldi 43.609 persónar. Útbreiðslan verður sostatt 763 per 100.000 (678,8-862,0 sannlíkindamark við 95%). Hin vanligasti bólkurin var primer generaliserað epilepsi við einum útbreiðslutali á 291, næst vanligast var partiel komplex epilepsi, har útbreiðslutalið var 215 per 100.000. Viðvíkjandi útbreiðsutalið fyri hinar bólkarnar verður víst til talvu X. Niðurstöðan verður, at í tíðarskeiðinum 1970-1980 fingu 194 persónar epilepsi, og útbreiðsludagin, hin 31. desember 1980, vóru 333 fólk í Föroyum við virknari epilepsi. Smanumtikið er metingin, at epilepsi er ein týðandi sjúka í Föroyum.

Sum lið í arbeiðinum at útgreina tær nervafrøðiligu sjúkurnar, sum áður eru umrøddar, vóru allar umsóknir um avlamispesión og fólkapensión fyri tíð, skrivaðar í teiðarskeiðinum 1939 til 1975, gjögnumlisnar. 6.200 læknáttanir, allar sum vóru skrivaðar frá 1939-1975, vórðu lisnar, og tær nervafrøðiligu sjúkurnar taldar upp. Funnið varð, at millum 30-50 persónar per 100.000 íbúgvar árliga fingu avlamispensión ella fólkapensión fyri tíð vegna nervafrøðiliga sjuku. Tær ymisku sjúkurnar verða umrøddar, og bitið verður merki í, at stöðugur heilabrúni (chronic encephalitis) og sequelae to acute poliomyelitis seinast í kanningskeiðinum ikki longur eru at finna, sum orsök til avlamni. Og at seinast í tíðarskeiðinum eru æðrasjúkur í heilanum tann mest týðandi orsök til avlamni. Eisini sæst parkinsonsjúka at vaksa lutfallsliga, sum orsök til avlamni frá 1939-49 til 1970-75. Samanumtikið verður mettt, at nervafrøðiligar sjúkur eru týðandi orsøkir til avlamni í föroyska fólkinum í umrødda tíðarskeiði.

# ÚTDRÁTTUR

Markmiðið með athuguninum, sem rætt er um í þessu riti, var að finna tíðni þeirra taugasjúkdóma sem álitnir voru algengastir í Færeyjum. Þessir sjúkdómar eru heilaæðakvillar, æxli innan höfuðkúpu og flogaveiki.

Talið er að Færeyjar séu heppilegar til faraldsfræðilegra athugana vegna þess að um er að ræða vel afmarkaðan hóp sem er tiltölulega stöðugur hvað varðar brott- og aðflutning. Einnig er um að ræða lýðfræðilega vel afmarkaða þjóð, eins og mannfræðilegar athuganir staðfesta. Gerð er grein fyrir þeim heimildum sem notaðar hafa verið til að finna sjúklunga sem kynnu að hafa einhvern af þeim sjúkdómum sem markmiðið var að skrá. Þessar heimildir eru sjúkraskráasöfn færeysku sjúkrahúsanna þriggja, læknisvottorð varðandi örorkubætur eða eftirlaun fyrir tímann, dánarvottorð útgefin á tímabilinu 1962-1980, skrár yfir fólk með æxli og skrár yfir heilafrafritanir á Landssjúkrahúsinu.

Færeyska þjóðin er álitin komin af norðmönnum og keltum sem settust að á eyjunum seint á 9. öld, um sama leyti og Ísland byggðist. Mannfræðilegar athuganir benda til að sem heild sé færeyska þjóðin líkust Íslendingum. Í janúar 1962 var fólksfjöldinn 35.748 en 43.609 í desember 1980. Árið 1987 voru aðeins 2.729 manns sem fæddir voru utan Færeyja búsettir þar. Um færeysku þjóðina má segja að um sé að ræða unga þjóð, 37,4% þjóðarinnar eru undir 20 ára aldri og 14,7% yfir 60 ára. Aldurssamsetningin er svipuð og meðal Íslendinga. Fjöldi látinna í Færeyjum er hlutfallslega hinn sami og á öðrum norðurlöndum: 22% deyja af völdum illkynja æxlis, 35% úr hjarta- og æðasjúkdómum og 11% úr heilaæðakvillum. Á tímabilinu 1971-74 var meðallífaldur í Færeyjum 72,4 ár hjá körlum og 76,7 ár hjá konum.

Fyrsta athugunin lýtur að tíðni æxla upprunninna innan höfuðkúpu á tímabilinu 1962-75. 52 tilvik slíkra æxla fundust (35 karlar og 17 konur). Árleg tíðni var því 9,9 á hver 100.000 (95% öryggismörk 7,5-12,7). Af þessum 52 sjúklungum með æxli upprunnið innan höfuðkúpu voru 20 á lífi 31. desember 1979. Borið var saman við athuganir frá Englandi, Bandaríkjunum, Svíþjóð og Íslandi. Í stuttu máli er niðurstaða athugunarinnar sú að u. þ. b. 5 manns á ári fengu æxli upprunnið innan höfuðkúpu.

Önnur athugunin, sem frá er greint í þessari ritgerð, snýst um að finna tíðni slags í Færeyjum á tímabilinu 1962-75. Niðurstaðan var að á tímabilinu frá 1. janúar 1962 til 31. desember 1975 fengu 74 karlar og 71 kona

slag. Tíðni slags er því 45,7 á hver 100.000 í aldursflokknum 15-65 ára (95% öryggismörk 33-35). 34 fengu innanskúmsblæðingu (subarachnoid hemorrhage) en 111 aðrar tegundir slags. Bent er á að tíðni hjá körlum 45-64 ára er lægri en í Danmörku, Finnlandi, Svíþjóð og Bandaríkjunum. Bent er á að Færeyingar hafa aðrar matarvenjur en fólk í Skandinavíu og flestum vestur-evrópulöndum. Færeyingar borða meiri fisk og sérstætt telst að etið er kjöt og spik af marsvínur í Færeyjum. Bent er á að blóðþrýstingshækkun er algengasti orsakavaldur slags, og að ókunnugt er hve margir Færeyingar eru með of háan blóðþrýsting.

Þriðja athugunin var gerð til að finna tíðni innanskúmsblæðingar í Færeyjum. Niðurstaðan var að innanskúmsblæðing fannst hjá 40 manns á umræddu tímabili. Tíðnin er því 7,4 á hver 100.000 á ári (95% öryggismörk 5,3-10,3). Aldursbundin tíðni í aldursflokknum frá 15-25 til 60 ára var hin sama og athuganir sýndu í Svíþjóð, Rochester í Bandaríkjunum, Englandi og á Íslandi en lægri en athuganir í Finnlandi sýndu. Aldursbundin tíðni hjá fólki eldra en 60 ára var miklu lægri en í Svíþjóð, Rochester í Bandaríkjunum og Finnlandi. Tíðni innanskúmsblæðingar hjá Færeyjum var hin sama og athugun á Íslandi sýndi þar sem niðurstaðan var að tíðnin væri 8,0 á hver 100.000. Lífurinn var samkvæmt þessari athugun 50% reiknað mánuði eftir að sjúkdómurinn hófst. Í stuttu máli verður niðurstaðan sú að innanskúmsblæðing sé algengasta orsök slags hjá ungu fólki undir 40 ára að aldri og samkvæmt þessari athugun munu líklega fjórir menn á ári fá innanskúmsblæðingu í Færeyjum.

Fjórða athugunin, sem fjallað er um í þessari ritgerð, var gerð til að finna tíðni og algengi flogaveiki í Færeyjum á tímabilinu 1970-80. Athugunin var afturvirk eins og þær sem áður var gerð grein fyrir. Á tímabilinu 1. janúar 1970 til 31. desember 1980 fengu 194 menn flogaveiki. Tíðnin er því 42 á hver 100.000 á ári (95% öryggismörk 33-49).

Tilvikin 194 voru flokkuð eftir alþjóðlegu flokkuninni frá 1969 og sést árleg tíðni hinna ýmsu flogaveikitegunda á töflu IX. Algengasta flogaveikin var sjálfvaktir flogakrampar (primary generalized grand mal) með tíðnina 14,8 en næst algengasti flokkurinn var staðbundin samsett flogaveiki (partial complex epilepsy) með tíðnina 11,3 á hver 100.000 á ári.

Algengisdaginn 31. desember 1980 voru 333 menn með flogaveiki (176 karlar og 157 konur) í þýðinu sem

var 43.609 manns. Algengið er því 763 á hver 100.000. (95% öryggismörk 678,8-862,0). Algengasti flokkurinn var sjálfvaktir flogakrampar með algengið 291 og næst algengust var staðbundin samsett flogaveiki með algengið 215 á hver 100.000. Varðandi algengi annarra flokka vísast til töflu X.

Niðurstaðan er sú að á tímabilinu 1970-80 fengu 194 menn flogaveiki og algengisdaginn, 31. des. 1980, voru 333 menn í Færeyjum með virka flogaveiki. Í stuttu máli er dregin sú ályktun að flogaveiki sé talsvert algengur sjúkdómur í Færeyjum.

Sem liður í þessu verki, að finna þá taugasjúkdóma sem áður er rætt um, voru lesnar allar umsóknir um örorkubætur og eftirlaun fyrir tímenn lagðar fram á tímabilinu 1939-75. 6.200 læknisvottorð, öll þau sem gefin

voru út á tímabilinu 1939-75 voru lesin og umræddir taugasjúkdómar taldir. Niðurstaðan var að milli 30 og 50 manns á ári á hver 100.000 íbúa fengu örorkubætur eða eftirlaun fyrir tímenn vegna taugasjúkdóma. Fjallað er um umrædda sjúkdóma og athygli vakin á að langvinna heilabólgu (encephalitis chronica) og afleiðingar mænu-sóttar (poliomyelitis anterior acuta, sequelae) er ekki lengur að finna sem orsakir örorku í lok rannsóknartímabilsins. Í lok tímabilsins eru æðasjúkdómar í heila mikilvægasta orsök örorku. Einnig kemur fram að lamariða (Parkinson's disease) verður hlutfallslega vaxandi orsök örorku frá 1939-49 til 1970-75. Í stuttu máli má álykta að taugasjúkdómar séu mikilvægar orsakir örorku meðal færeysku þjóðarinnar á umræddu tímabili.

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