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The Prevalence of Psoriasis in Denmark

Flemming Brandrup[1] and Anders Green[2]

[1]Department of Dermatology, Gentofte Hospital, Hellerup, and [1]Department of Dermatology, Odense University Hospital, Odense, and [2]Institute of Clinical Genetics, Odense University, Odense, Denmark

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Abstract. A representative random sample comprising approximately 4000 Danes, 16–99 years old, were questioned as to present or previous psoriasis eruption by non-medical, professional interviewers. Based on the information obtained, the point prevalence for men was 4.2%, for women 3.3%. 88% of those who believed themselves to be suffering from psoriasis stated that they had been treated by doctors for psoriasis and 71% by dermatologists and/or dermatological departments. The difference found between men and women is not statistically significant. The actual prevalence has been adjusted according to an estimated overcalculation of some 25% based on the number of false-positive answers to questionnaires in a twin study. The prevalence for men is thus adjusted to 3.2% and for women to 2.5%. The number of adult psoriatics in Denmark is estimated at approximately 113000, of whom 71000 suffer from mild psoriasis and 42000 from more severe psoriasis.

Key words: Psoriasis; Epidemiology; Prevalence

Epidemiological data are essential for the planning of health care and disease control, and as a basis for studies concerning identification of genetic and environmental etiological factors.

In the Nordic countries, population surveys with special reference to psoriasis have been made in the Faroe Islands and in Sweden (2, 4). Lomholt's study from the Faroe Islands (4) is unique, since it is based on a complete census of all households in a well-defined region, including about one-third of the total Faroese population. The overall prevalence of psoriasis in these persons was 2.8%, with no sex difference.

In Denmark, systematic population surveys concerning the prevalence of psoriasis have never been made. Therefore, we have participated with questions in an interview survey covering a random sample of approximately 4000 Danes. This study differs from previous Nordic population studies in not being a disease-centered survey but an examination of Danes who were contacted with the aim of obtaining especially sociological data.

MATERIAL AND METHODS

Danmarks Statistik and the Danish Social Research Institute regularly perform interview surveys during the months of January, May and October covering a representative sample of the Danish population. These surveys are utilized by scientists, public authorities and institutions. In October 1978 we participated in an interview survey where questions about psoriasis were included.

The actual study sample was drawn from the total Danish population (excluding the Greenlandic and Faroese populations) between age 16 and 99 years; a multistage sampling procedure was used, based on stratification of the total population as to sex, age, geographical distribution and urbanization degree in order to render the sample representative of the Danish general population (3, 5).

The number in the random sample was 4977 (6). These persons were visited at their home address by non-medical, professional interviewers and were questioned according to standardized procedures. The interviews were performed from October 3rd through October 20th, 1978.

In total, 3892 interviews were made (78.2%). Drop-out was due to: refusal of visit (12.8%), persons not met (2.4%), and other reasons (6.5%). A relatively lower percentage of respondents was obtained in the capital (68%);

Table I.

Age groups	Males			Females		
	Interviews	Psoriasis[a]	% psoriasis	Interviews	Psoriasis[a]	% psoriasis
16–19	181	7	3.87	139	2	1.44
20–29	329	8	2.43	351	9	2.56
30–39	378	21	5.56	383	12	3.13
40–49	296	10	3.38	289	13	4.50
50–59	311	13	4.18	308	10	3.25
60–69	261	15	5.75	239	8	3.35
70–79	110	2	1.82	188	9	4.79
80–89	40	3	7.50	75	2	2.67
90–99	10	1	10.0	4	0	0.0
Total	1 916	80	4.18 (3.26–5.09)[b]	1 976	65	3.29 (2.49–4.09)[b]

[a] 'Yes' to the question: "Are you or have you ever been suffering from psoriasis?"

[b] 95% confidence limits: prevalence rate ±2 S.E. where $S.E. = \sqrt{\frac{(1 - \text{prev. rate}) \times \text{prev. rate}}{\text{number of individuals}}}$.

it was especially high in the less urbanized provinces (Jutland) (85%), slightly below average among people above 50 years of age (77%) and among divorcees (73%) and the unmarried (75%). Among men and women the percentage of participation was the same (79 and 78%, respectively).

Regarding psoriasis the persons were questioned as follows: 1. Are you or have you ever been suffering from the skin disease psoriasis?

2. Have you been treated for that disease by your general practitioner?

3. Have you been treated for that disease by a dermatologist?

4. Have you been treated for that disease at a dermatological department (clinic/hospital)?

RESULTS

Table I shows the total number of interviews and the number of positive answers to the question about present or previous psoriasis. In total, 80 males and 65 females answered 'yes', and thus the prevalence rates of present or previous psoriasis were calculated to 4.2% and 3.3% respectively; the difference between the male and female total rates is not statistically significant (by a comparison of the 95% confidence limits around the rates).

Age-standardized prevalence rates were calculated and compared between different geographical regions, but no differences were found.

Among males answering 'yes' to psoriasis, 70 (88%) reported that they had been treated for psoriasis by a doctor, and 57 (71%) reported that they had been treated by dermatologists (in or outside hospital). The corresponding numbers among females were 57 (88%) and 46 (71%).

DISCUSSION

The present survey was based on a representative sample of the Danish population aged 16–99 years; the magnitude of drop-out is characteristic of this kind of survey, and we assume that drop-out has occurred independently of the psoriatic status. Because of the anonymity of the persons interviewed, it has not been possible to verify the information by inquiries to general practitioners or dermatologists. However, with the experience from previous twin investigations it is possible to give some information about the extent to which self-reporting of psoriasis reflects actual facts.

In an intensive study of psoriasis in an unbiased series of twins from The Danish Twin Register, the first part of which has been published (1), we found that 24% of the positive answers included in primarily forwarded questionnaires were false-positives. Examples of erroneous diagnoses are seborrhoeic dermatitis and stasis eczema. Supposing that the number of false-positive statements in an interview survey is the same, and that the number of false-negative answers is small, the prevalence may be corrected, leading to estimates of 3.2% for men and 2.5% for women, which is a little less than the prevalence of psoriasis reported treated by general practitioners. The interpretation of this could be that some statements of medically verified psoriasis

prove to be false-positive cases based on a general practitioner's tentative diagnosis which was the case in a number of patients in the twin study.

Because as many as 88% of the self-reporting psoriatics told that they had been treated by a doctor, and 71% by a dermatologist, we believe that the prevalence rates presented, with the above-mentioned corrections, are valid. However, we are not able to estimate the number of false-negatives (i.e. psoriatics answering 'no' to the questions in the interview) but we believe this number to be negligible.

As is shown in Table I, no distinct increase appears in the prevalence of present *or* previous psoriasis eruptions during the examined decades which was to be expected for a disease like psoriasis that can manifest itself at any age. The lack of increase my be due to a large statistical uncertainty in calculating the prevalence rate in the older age groups due to the small number of interviewed persons. Theoretically, it may also be presumed that the lack of increase is due to the older age groups having had a lower risk of psoriasis than the younger persons, or that a higher mortality among the psoriatics had been present. However, the most probable cause is bias due to loss of memory among elderly persons concerning minor eruptions of psoriasis in their early years.

Based on corrected prevalence rates of 3.2% for men and 2.5% for women between 16 to 99 years of age, it is possible to estimate the number of psoriatics in the adult Danish population (7), as the total population has the same sex and age distribution as the random sample. Consequently, the number of adult psoriatics is estimated to be 62 000 men and 51 000 women, i.e. 113 000 psoriatics living in Denmark at present.

In the non-selected twin material published previously (1) it was attempted to graduate the severity of psoriasis into light recurring (LR), light constant (LC), moderate constant (MC), and severe constant (SC). In this twin material, with an as-yet unpublished extension, the grade of severity among genotypically different individuals is as follows: LR 22%, LC 41%, MC 30% and SC 7%. Provided that the distribution of severity is the same as found in the non-selected twin material it is estimated that in the Danish age group ranging from 15 to 90 years, 71 000 suffer from light psoriasis (LR+LC) and 42 000 from more severe psoriasis (MC+SC) of which the last-mentioned group is presumed to use the health authorities' remedial measures for longer periods.

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A Comparative Study of the Results of Phlebotomy Therapy and Low-dose Chloroquine Treatment in Porphyria Cutanea Tarda

L. Malina and J. Chlumský

Department of Dermatology, Faculty of Medical Hygiene, Charles University, and Department of Medicine I, Thomayer's Hospital, Prague, Czechoslovakia

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Abstract. Longer remissions after the phlebotomy therapy than after the low-dose chloroquine treatment were ascertained by means of the long-term follow-up of a large group of porphyria cutanea tarda patients. An attempt to prove the dependence of the length of laboratory and clinical remission on the values of initial porphyrinuria, on the degree of morphological liver changes, and on the total amount of blood withdrawn at phlebotomy was unsuccessful. On the contrary, a direct relationship was observed between the length of remission and the age of the subject on commencing treatment. At the same time, it was impossible to prove a causal relationship between the length