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THE AGE OF ONSET OF LEPROSY[1]

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In many branches of leprosy the continued lack of reliable and complete data invalidates many tentative conclusions and constitutes a serious obstacle to progress. This is nowhere more apparent than in the matter of the age of onset of leprosy. While, admittedly, so many factors are involved that wide variations must occur between one community and another, it is necessary to accumulate and examine critically records from diverse environments. The present review concerns the age of onset of the disease in personally-observed series in two leprosy control areas in Africa.

Eastern Nigeria.—The records of all persons presenting themselves from August 1959 to December 1964 at the Diagnostic Clinic of the Research Unit, Uzuakoli, and diagnosed as suffering from leprosy, form the basis of the first part of this enquiry. During this period, some 1,015 patients were diagnosed as having leprosy, of whom 891 were placed on treatment. In addition, 2,586 persons were diagnosed at the district leprosy clinics, making a total diagnosed and placed on treatment of 3,477. On the basis of the classification adopted in the returns (for UNICEF), the figures indicated in Table 1 emerged.

TABLE 1.—*Classification of patients studied.*

	Adults	Children	Total
Lepromatous	350	47	397
Tuberculoid	2,571	255	2,826
Uncharacteristic	190	64	254
	3,111	366	3,477

No valid conclusions can be drawn from these figures regarding the actual incidence of leprosy as augmented by annual increments of newly diagnosed cases, since the population at risk is not accurately known and the figures are not based on complete surveys. The great majority of the patients came to the Clinic of their own accord, after noticing certain signs or symptoms they attributed to leprosy. Relatives or neighbors or local officials persuaded some to seek medical

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advice; others were referred by hospitals or doctors. The ultimate criterion was thus in most cases the suspicion of nonmedical persons that certain abnormalities were due to leprosy.

Treatment for leprosy has been available for 15 years or longer in all parts of the district. An original innate fear and dread of leprosy and its neuropathic manifestations is slowly giving place in some areas to a regrettable unconcern arising from ignorance of its ravages.

While the duration of the silent or latent phase of leprosy is variably long and a matter of surmise in the individual patient, some indication of the interval between the appearance of the first sign or symptom of leprosy and the patient's coming to the Diagnostic Clinic may be derived from careful questioning. The results may well be an underestimate, which may come from a wilful desire to mislead or from a genuine failure to notice some persistent loss of sensation or a vague hypopigmented patch in the skin.

In many patients it was obvious, from a knowledge of the natural history of the disease in the individual, that the admitted delay was but a fraction of the probable delay. Thus, macular lepromatous leprosy was frequently overlooked until the confluent lesions occupied the entire skin except for small areas in the inguinal, sacral and axillary regions, and until lepromatous nodules began to make their appearance on the face and ears, or even until peripheral neuropathy was manifest.

The average admitted delay was just under 2 years in the case of patients with bacteriologically positive lesions (lepromatous and borderline), and 15 months in the case of those with negative lesions (mainly tuberculoid). This difference is explicable on the basis of the appearance of the lesions: the more easily seen and recognized the lesion and the more difficult it is to conceal, the shorter the time elapsing between its appearance and the seeking of medical advice. The less obvious, but potentially more serious, lesions are not noticed or are not recognized for what they are, or are concealed, for a longer period.

The Congo.—The records concern patients diagnosed as suffering

TABLE 2.—*Age distribution of cases studied.*

Age in years	Nigeria		Congo	
	Number	%	Number	%
0 - 9	31	3.1	115	17.1
10 - 19	155	15.3	140	20.8
20 - 29	148	14.6	141	20.9
30 - 39	282	27.8	135	20.1
40 - 49	192	18.9	98	14.6
50 - 59	120	11.8	31	4.6
60>	87	8.6	13	1.9
Total patients	1,015		673	

TABLE 3.—*Incidence of new cases of leprosy in relation to risk.*

Age in years	Male			Female			Total		
	Newly diagnosed cases of leprosy	Number at risk	Leprosy rate per 1,000 (new cases)	Newly diagnosed cases of leprosy	Number at risk	Leprosy rate per 1,000 (new cases)	Newly diagnosed cases of leprosy	Total population at risk	Leprosy rate per 1,000 (new cases)
0 - 9	54	6,481	8.3	61	5,838	10.4	115	12,319	9.3
10 - 19	85	5,928	14.3	55	4,441	12.4	140	10,369	13.5
20 - 29	60	3,422	17.5	81	3,908	20.7	141	7,330	19.2
30 - 39	62	2,756	22.5	73	2,502	29.2	135	5,258	25.7
40 - 49	54	2,769	19.5	44	2,044	21.5	98	4,813	18.3
50>	19	3,233	5.9	25	1,713	14.6	44	4,946	8.9
	334	24,589	13.6	339	20,446	16.6	673	45,035	14.9

from leprosy in the Yakusu area of the ex-Belgian Congo during a 24-month period (1957-58). Annual medical surveys of the entire population had been carried out ([2]), and records were available of all persons suffering from leprosy. Facilities for treatment of leprosy were provided at rural health centers and satellite treatment centers manned by trained medical auxiliaries. A skeleton antileprosy service had been organized in the presulfone days, but the full-scale attack on leprosy had perforce to await the advent of dapsone.

About three-quarters of the patients were members of peasant farming families; the remainder lived in riverside villages and were engaged in fishing.

The diagnosis of leprosy was made in two ways. As the medical auxiliaries became locally knowledgeable and gained the confidence of the inhabitants of all the villages in the sectors for which they were responsible, they were consulted for every persistent skin abnormality. If they entertained any suspicion of leprosy, the patient was asked to attend at the next inspection visit of the doctor, usually in less than 6 weeks. Skin smears would then be taken, and a complete clinical examination made.

To fill up any lacunae in this system, and to discover any atypical cases of leprosy unnoticed or unsuspected, a medical team made regular surveys every 6 or 12 months; this team included members competent to examine skin and nerve abnormalities and had facilities for microscopy of material obtained from skin smears. Thus the leprologist was able to review all patients with suspicious signs, and to correlate clinical with bacterioscopic findings.

With this two-pronged diagnostic attack, the delay between the appearance of the first sign and the definitive diagnosis was usually under 6 weeks, rarely as long as 6 months.

Age distribution of newly diagnosed cases of leprosy.—When the age distribution of the cases of leprosy in the two series is compared, certain dissimilarities become apparent (Table 2). It is evident that

the method of case-finding employed determines in large measure the completeness of the picture of incidence.

When the whole population is regularly examined, as in Congo, a high proportion of younger people suffering from leprosy is at once apparent. In Congo, nearly 40 per cent of the newly diagnosed patients were under 20 years of age, as against 18 per cent in Nigeria, whereas the over 50 years of age group was proportionately 3 times as large in Nigeria as in Congo.

Although accurate figures are not available for the age distribution of the population in Eastern Nigeria, field studies of healthy villagers and hospital outpatients suggest that it is not very different from that in Congo.

Incidence of newly-diagnosed cases of leprosy.—In Congo, the 673 new cases of leprosy appeared in a total population of 45,035 persons,

TABLE 4.—*Classification of patients studied by type of leprosy.*

	Patients already under treatment		Patients newly diagnosed	
	Number	%	Number	%
Lepromatous	1,104	20.6	37	5.5
Borderline	169	3.2	24	3.6
Tuberculoid	3,889	72.7	586	87.1
Indeterminate	187	3.5	26	3.9
Total	5,349		673	

TABLE 5.—*Numbers of patients by age and type of disease.*

	Eastern Nigeria					Congo				
	Lepromatous	Borderline	Tuberculoid	Indeterminate	Total	Lepromatous	Borderline	Tuberculoid	Indeterminate	Total
0 - 9	4	4	18	5	31	9	2	98	6	115
10 - 19	26	21	97	11	155	12	6	113	9	140
20 - 29	31	28	81	8	148	8	3	124	6	141
30 - 39	55	42	176	9	282	5	8	119	3	135
40 - 49	16	29	143	4	192	2	4	90	2	98
50>	10	30	160	7	207	1	1	42	0	44
Total	142	154	675	44	1,015	37	24	586	26	673

TABLE 6.—*Types of leprosy in young and old in series studied.*

Age in years	Lepromatous	Borderline	Tuberculoid	Indeterminate
0 - 4	1	1	2	2
5 - 9	3	3	16	3
10 - 14	13	11	58	7
15 - 19	13	10	39	4
50 - 59	6	23	90	1
60 - 69	4	4	60	6
70>	..	3	10	..

of whom 5,349 were already under treatment for the disease ([1]), representing a prevalence rate of 119 per 1,000 population for leprosy patients requiring treatment. This figure takes no cognizance either of the not inconsiderable number discharged symptom-free after treatment or of those in whom the disease had regressed spontaneously.

A break-down of the population figures permits the calculation of the incidence of new cases of leprosy in each age-group for the two-year period (Table 3).

The newly diagnosed patients at this stage of the endemic represent a preponderant accession of the less serious, less bacilliferous type of leprosy, as Table 4 indicates.

Age distribution of newly diagnosed cases of leprosy according to type of disease.—Table 5 places in juxtaposition the numbers of patients suffering from the four main types of leprosy, arranged according to age groups, in the Eastern Nigeria and the Congo series.

Leprosy in the young and the very old.—Reasonably accurate age approximations available in the Nigerian records suggest that the first indications of leprosy infection may occur at almost any age. Typical examples of all the main varieties of leprosy are represented in patients 4 years old and less, and in those above the age of 60 years. No patient over 70, however, was found to be suffering from either lepromatous or indeterminate leprosy. Prepuberal and adolescent children of both sexes, similarly, suffered from leprosy in its different varieties. A comparison of types of disease in young and old is given in Table 6.

SUMMARY

No age is exempt from leprosy. An accurate picture of the prevalence of leprosy can be obtained only by regular surveys of the whole population at risk.

In comparable communities, a higher proportion of leprosy infection in the younger age groups will be disclosed by examination of all children.

The incidence of new cases of leprosy generally increases with age during the first four decades, thereafter declining.

In whole population surveys in the Congo, the incidence of new cases of leprosy was slightly greater among females in all age groups except the adolescent.

Any form of leprosy may occur at any age. There is a tendency for bacilliferous disease to reveal itself at a slightly lower age than nonbacilliferous disease.

RESUMEN

Ninguna edad está exempta de la lepra. Un cuadro adecuado de la prevalencia de la lepra se puede obtener solamente por medio de investigaciones regulares de toda la población riesgo.

En comunidades comparables se descubrirá una mayor proporción de infección leprosa en los grupos de edades jóvenes, por el examen de todos los niños.

La incidencia de nuevos casos de lepra generalmente aumenta con la edad durante las primeras cuatro décadas, decayendo luego.

En las investigaciones de la población total en el Congo, la incidencia de nuevos casos de lepra fué ligeramente mayor entre las mujeres de todos los grupos de edades, excepto la adolescente.

Cualquier forma de lepra puede ocurrir a cualquier edad. Hay una ligera tendencia de las enfermedades bacilíferas para revelarse a edades ligeramente menores que las enfermedades no bacilíferas.

RÉSUMÉ

Il n'est pas d'âge que la lèpre épargne. Un aperçu réel de la prévalence de la lèpre ne peut être obtenu que par des examens systématiques réguliers de toute la population qui est exposée à la maladie.

Dans des communautés comparables, c'est lorsque tous les enfants sont examinés que l'on découvrira dans les groupes d'âge les plus jeunes une proportion plus élevée d'infections lépreuses.

L'incidence de nouveaux cas de lèpre augmente généralement avec l'âge durant les quatre premières décades, et diminue ensuite.

Dans des enquêtes systématiques menées au Congo et couvrant l'entièreté de la population considérée, l'incidence des cas de lèpre était légèrement plus élevée parmi les sujets de sexe féminin, et ceci était le cas dans tous les groupes d'âge, à l'exception des adolescents.

N'importe laquelle des formes de la lèpre peut survenir à tout âge. Les formes bacilliferes de l'affection ont tendance à apparaître à un âge légèrement plus juene que les formes non bacillifères.

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REFERENCES

1. Browne, S. G. Onchocerciasis and leprosy. Leprosy Rev. **31** (1960) 46-51.
2. Browne, S. G. The role of the medical auxiliary in field surveys in tropical Africa. Trans. Roy. Soc. Trop. Med. & Hyg. **58** (1964) 370-376.