Letter to the Editor

HIDDEN PREVALENCE OF LEPROSY

One of the ‘enigmas’ of leprosy is the so-called ‘hidden prevalence’. This term seems to be utilized exclusively in the context of leprosy, where ‘prevalence’ itself is frequently and erroneously identified with the rate of registered cases.

Generally, the prevalence of any disease (be it contagious or not) is the ‘proportion of individuals in a population who have the disease at a specific instant’. Since only in the case of leprosy is the distinction between registered and hidden ‘prevalence’ made, any attempt to define the ‘hidden prevalence’ must be thoroughly scrutinized. Otherwise, the true dimension of the leprosy problem might be missed.

One such approach, published 2 years ago, is still utilized in Latin America. The following formula was proposed (modified, mathematically correct version):

Estimate of non-detected cases = disability proportion × number of newly detected cases

The underlying assumption is a strong positive correlation between the disability proportion among newly detected patients and the number of non-detected cases. No other variables are taken into account.

The appropriateness of this assumption has already been challenged. Although a correlation between the diagnostic delay (and in consequence the ‘hidden’ prevalence) and the grade of disability is identified, another formula is given:

Estimated hidden prevalence

\[ \sum (\text{mean number of annually detected new cases in each disability category} \times \text{mean time of diagnostic delay in each disability category} \div \text{(proportions of patients having passed disability assessment} \times \text{proportion of population covered by leprosy services)} \]

Other publications have identified a respectable number of confounding factors affecting the reliability and validity of disability grading. Among those, the ‘phase’ of leprosy control (early, immediate or elimination phase), and case-finding activities in untouched ‘leprosy pockets’ might be mentioned.

The second formula given can be simplified for all disability categories to the following one:

Estimated hidden prevalence = (number of annually detected cases \times \text{diagnostic delay in years} \div \text{proportion of population covered)

In the end, it can be reduced to the evident statement that a ‘hidden’ case of a disease is a case not yet diagnosed.

Of course, the best tool to assess the dimension of ‘hidden’ disease is a survey of a representative population sample. In contrast, interviewing patients about the duration of their symptoms depends
very much on their memory’s precision, and self-healing cases of leprosy—presumably a considerable part of the ‘hidden prevalence’—might be missed.

Notwithstanding these and other weaknesses, the incomplete detection of eventual shifts between disability and disease categories (including spontaneous cure) before diagnosis, the last formula given provides a useful approach to determine the proportion of diseased and not yet detected leprosy cases who actually will get in contact with the services. Strikingly, the disability proportion does not appear at all in this formula.

The utilization of the first formula given for the calculation of the future workload should be discouraged. This recommendation is the more true as it excludes mathematically any ‘hidden’ prevalence larger than the number of annually detected cases. From the epidemiological point of view, this does not fit with reality.

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References