High prevalence of non-leprous hypochromic patches among children in a rural area of Mali, West Africa


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Summary  The identification of one or several hypochromic patches (HP) on the skin is a key stage in the diagnosis of leprosy on dark skin. However, HP are often caused by other disorder than leprosy. A study to determine the prevalence and causes of HP among children was carried out in a rural area of Mali in November 2001. All children under 15 years of age in two villages in an endemic area were screened by two dermatologists. Among the 1729 children seen, HP were identified in 71 patients, with a prevalence of 4.1%. The most common cause of HP was tinea versicolor, which was present in 39.4% of children with HP, followed by pityriasis alba in 31%, naevus achromicus in 24% and vitiligo in 5.6%. No case of leprosy was detected. Our study raises several points with practical consequences for the detection of leprosy cases: the high prevalence of non-leprous HP compared to leprosy, the reliability of the clinical diagnosis of leprosy, and the role of general health care workers in the detection of leprosy cases. Helping those who should be involved in that detection in distinguishing true cases from other hypochromic disorders appears to be a priority.

Introduction

The occurrence of one or several hypochromic patches (HP) on the skin is a common feature of leprosy on dark-skinned patients, and its identification is particularly important for the early detection of leprosy. However, HP are often caused by disorders other than leprosy. In view of the fact that to date the information about the prevalence of HP and its causes among the general population in leprosy endemic countries are relatively few, the aim of this study was, therefore, to determine the prevalence and causes of HP among children in a rural area of Mali, West Africa.
Materials and methods

Through a pilot project for improvement of basic care for common skin diseases in the Republic of Mali, a prevalence study of skin diseases was performed in a rural area near the capital Bamako. Two villages with a population estimated from the last national census (1998) to be 2329 and 1078 inhabitants, respectively, were selected according to the study design. In November 2001, all children under 15 years of age living in these two villages were screened by two trained dermatologists with appropriate expertise who carefully examined the whole skin. Special attention was paid in order to identify hypochromic patches, defined as ‘a skin patch lighter in pigmentation than normal surrounding skin, with a diameter of at least 1 cm’, regardless of its potential origin. Identification of the different causes of HP was based on the clinical features supplemented by sensory evaluation and palpation of peripheral nerves. Data were captured and analysed with the software Epi info version 6.04.

Results

Among the 1729 children seen in the two villages, HP were identified in 71 patients, with a prevalence of 4.1% (4.09–4.11). The most common causes of HP were tinea versicolor (TV), which was present in 39.4% of children with HP, followed by pityriasis alba (PA) in 31%, naevus achromicus (NA) in 24% and vitiligo in 5.6%. Not a single case of leprosy was detected. Further analysis indicates that PA was more likely to be seen in younger children (mean age: 4 years, \( P < 0.001 \)), while PV occurred in older ones (mean age: 10 years, \( P < 0.001 \)). The common locations were the face for PV and PA, and the trunk for NA.

Discussion

In a leprosy endemic area, non-leprotic HP are the most important differential diagnosis with leprosy. Our study raises several essential points with practical consequences for the detection of leprosy cases: (i) the high prevalence of non-leprotic HP compared to leprosy, (ii) the reliability of the clinical diagnosis of leprosy and (iii) the role of general health care worker (HCWs) in the identification of leprosy cases.

In the study area, the prevalence of non-leprotic hypochromic disorders was found to be 4.1%, whereas the prevalence rate and new case detection rate of leprosy are estimated at below 1/10,000.\(^5\) If we assume that approximately 10% of the cases occur in children, and that children below 15 years represent about 50% of the population, this would mean the prevalence of leprosy in that class of age is probably close to 0.2/10,000. Consequently, if an HP is detected in a child, the chance of this being due to leprosy is approximately 1 in 20,000 as compared with other causes. Not surprisingly, the causes of hypochromia most commonly identified were pityriasis versicolor, pityriasis alba, and naevus achromicus, disorders known to be the most common causes of hypochromic lesions on dark skin.\(^2\) Each of these disorders appeared to be approximately 500 times more common than leprosy in children. Nevertheless, the low frequency of leprosy by no means rules out the possibility that some HP are caused by leprosy.

Due to lack of training and practice, the reliability of the diagnosis of leprosy by general health workers has been questioned. According to some authors, over-diagnosis has been
estimated to be 30% among newly detected cases of leprosy in certain areas. A study in 12 endemic states in India found as many as 25% wrong diagnoses among new paucibacillary (PB) cases in certain states. This proportion was significantly higher for PB compared to multibacillary cases. If the non-leprotic HP are wrongly diagnosed as leprosy, most likely they are diagnosed PB leprosy. In practice, the diagnosis of PV and NA is generally easy, but PA may easily be misdiagnosed as leprosy because of both its clinical feature and high frequency, which has been estimated to range from 1 to 9% in previous studies. One may wonder about the proportion of HP which would be wrongly diagnosed as leprosy if these children were seen by health care workers. However, diagnostic errors can be avoided when the principle core criteria for the diagnosis of leprosy are rigidly applied and the clinical procedures, i.e. testing superficial sensitivity of suspected skin lesions, and search for nerve enlargement, are performed with care and skill.

We believe that the high prevalence of non-leprotic hypochromic lesions reported here is an important addition to current information: indeed, training all health care workers potentially involved in the detection of leprosy in distinguishing true cases from other more common hypochromic disorders should be a priority, especially today when there is an increasing impetus to integrate leprosy control programmes at primary health care level. Concerning general health care workers, an option would be to make them able to eliminate the most obvious differential diagnoses of leprosy, while referring remaining cases to a higher level where a more specialized leprosy worker would make the diagnosis.

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References