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<tbody>
<tr>
<td>No. patients detected during the year</td>
<td>1197</td>
<td>1135</td>
<td>1029</td>
<td>1093</td>
<td>907</td>
<td>810</td>
<td>781</td>
<td>638</td>
<td>693</td>
<td>618</td>
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<tr>
<td>Detection rate/10,000</td>
<td>1.7</td>
<td>1.6</td>
<td>1.4</td>
<td>1.4</td>
<td>1.1</td>
<td>1.0</td>
<td>0.9</td>
<td>0.7</td>
<td>0.73</td>
<td>0.63</td>
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<td>Annual reduction/increase in detection rate (%)</td>
<td>-14</td>
<td>-8.5</td>
<td>-12</td>
<td>+2.4</td>
<td>-20</td>
<td>-7.0</td>
<td>-21</td>
<td>+4.7</td>
<td>-14</td>
<td></td>
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<tr>
<td>Percentage of patients with a disability &gt; 1 (WHO grading 1960)</td>
<td>12.9</td>
<td>12.5</td>
<td>11.1</td>
<td>9.8</td>
<td>11.7</td>
<td>7.9</td>
<td>11.3</td>
<td>11.9</td>
<td>10.2</td>
<td>13.2</td>
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<tr>
<td>Percentage of patients with multibacillary leprosy</td>
<td>17.4</td>
<td>21.1</td>
<td>20.7</td>
<td>17.7</td>
<td>19.7</td>
<td>14.8</td>
<td>18.3</td>
<td>21.2</td>
<td>21.5</td>
<td>20.7</td>
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worldwide pattern of declining leprosy detection rates (4).

The relevance of the Gormus, et al. and Baskin, et al. findings (based on three out of five rhesus monkeys) thus still awaits confirmation. But time will tell.

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REFERENCES

Dr. Borgdorff Replies

TO THE EDITOR:

The papers of Gormus, et al. (1) and Baskin, et al. (1) suggest that SIV infection increases the risk for the development of leprosy in experimentally inoculated rhesus monkeys, although their results were not statistically significant (3/5 SIV-infected and 6/29 non-SIV-infected monkeys developed leprosy; Fisher’s exact test p > 0.05). The papers by Pönnighaus, et al. (4) and Borgdorff, et al. (4), on the other hand, aimed at estimating the risk of HIV-1 infection for the development of leprosy in humans.

Once cannot simply extrapolate statements on SIV in rhesus monkeys to those on HIV-1 in humans. However, if both SIV in rhesus monkeys and HIV-1 in humans increase the risk for developing leprosy (as some, although not all, of the evidence suggests), the former may be a good model for the latter.

—Martien W. Borgdorff, M.D.
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REFERENCES
1. BASKIN, G. B., GORMUS, B. J., MARTIN, L. N., MURPHEY-CORB, M., WALSH, G. P. and MEYERS,
Experimental Transmission of Human Leprosy Bacilli in Foot Pads of Severe Combined Immunodeficient Mice

To the Editor:

After the discovery of Mycobacterium leprae as the etiologic agent of human leprosy, it soon became clear that this mycobacterium cannot be grown in vitro. Hence, the search for a suitable animal model began. Animal models of leprosy used by investigators between 1879 and 1986 have been reviewed by Johnstone (1). Of the several animal models so far employed, only armadillos and nude mice are currently used for the production of M. leprae to be used in all fields of leprosy research. After infection, the maintenance of these animals for 12–18 months under controlled conditions is quite expensive. Recently, a mouse with severe combined immunodeficiency (SCID) reconstituted with human peripheral blood leukocytes has been developed (2). In an attempt to determine if SCID mice are susceptible to human leprosy and whether higher yields of M. leprae can be obtained in a relatively shorter period of time, studies on the transmission of human leprosy to SCID mice were carried out.

A bacillary suspension of M. leprae containing $1 \times 10^8$/ml acid-fast bacilli (AFB) was prepared from a foot-pad lesion of nude mice previously infected with human leprosy bacilli. Three groups of 10 SCID mice (females, 6 weeks of age) were inoculated in the hind foot pads with a 20 μl bacillary suspension containing $1 \times 10^5$, $1 \times 10^6$ and $1 \times 10^7$ bacilli. In parallel, three groups of 10 nude mice (as controls) were also infected the same way. Both types of mice were kept at 22°C in the same specific pathogen-free vinyl plastic isolator. Food, water (ad libitum) and bedding after sterilization were provided under aseptic conditions. Following the inoculation of the foot pads with M. leprae both SCID and nude mice were sacrificed at various time intervals and AFB were counted according to the method of Shepard and McRae (3).

Regardless of the number of bacilli used in the inocula, about 5 months' postinfection a slight swelling in all foot pads of both types of mice started to appear; although more visible in SCID mice. The swelling gradually continued and became quite apparent after 7 to 8 months of infection. Our results have shown that in the foot pads of SCID mice infected with $1 \times 10^5$, $1 \times 10^6$ and $1 \times 10^7$ AFB maximum yields of $1.2 \times 10^8$, $4.3 \times 10^7$ and $9.0 \times 10^7$ bacilli were found after 11, 9 and 8 months of infection, respectively. Thereafter, the number of bacilli gradually decreased upon further incubation, and only some degenerated bacilli were found at the inoculation site after 15 months of incubation. In the foot pads of nude mice infected with $1 \times 10^5$ and $1 \times 10^6$ bacilli, at 10 months' postinfection $7.8 \times 10^7$ and $2.5 \times 10^8$ bacilli/foot pad were obtained, respectively. These results show that up to 10 months postinfection the total number of bacilli in the foot pads of nude mice were lower than estimated in the foot pads of SCID mice. However, in the foot pads of nude mice multiplication of M. leprae continued progressively at all three inocula used and about 12 months postinfection remarkable swelling of the infected foot pads of nude mice was observed.