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INCIDENCE OF ONCHOCERCIASIS IN NORTHERN CAMEROON

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TABLE 1

Population recorded during the nationwide census of 1987, and pre-treatment prevalence of skin microfilariae (PMF), and geometric mean microfilarial density (MFD) in the initial treatment area

Age (years)	Sex	Population census	Number examined	PMF (%)	MFD (mf/ss)*
0-4	M	397	0	-	-
	F	381	0	-	-
	Total	778	0	-	-
5-9	M	309	103	61.2	4.9
	F	297	129	55.8	2.8
	Total	606	232	58.2	3.6
10-14	M	110	101	88.1	29.6
	F	98	76	76.3	9.4
	Total	208	177	83.1	18.4
15-29	M	315	290	97.9	111.7
	F	485	314	93.9	41.4
	Total	800	604	95.9	67.0

kg of body weight, taking into account the usual exclusion criteria: children less than five years of age, a weight less than 15 kg, pregnancy, first month of lactation, jaundice, central nervous system disease, and severe clinical illness. The full name, sex, age, and weight of every treated person was registered every year and the data concerning the children less than 10 years of age were gathered in a file. Thus, it was possible to know if a child received a treatment during the previous years. The tablets were swallowed by the subjects in front of the drug dispenser so that the drug could not be taken away and given to people ineligible for treatment.

Parasitologic examination. Before the first treatment round in 1987, a parasitologic examination was carried out in the original treatment area in 1,443 subjects five years of age and older who came to the ivermectin distribution point and agreed to be examined (Table 1). These individuals cor-

	F	231	149	96.0	82.7
	Total	447	329	96.7	98.2
≥50	M	119	60	98.3	159.8
	F	70	41	95.1	175.7
	Total	189	101	97.0	165.9
≥5	M	1,069	734	91.3	28.5
	F	1,181	709	85.6	63.9
	Total	2,250	1,443	88.5	43.1

* mf/ss = microfilariae per skin snip.

older recorded during the nationwide census of 1987. Among the 1,443 subjects examined, 151 were five-, six-, and seven-year-old children. This sample corresponds to 36.4% of the children of this age recorded in 1987. Two skin snips were taken with a 2-mm Holth corneoscleral punch (Storz Instrument GmbH, Heidelberg, Germany) from the two iliac crests of each patient. Each biopsy specimen was immediately placed in the well of a microtitration plate containing 300 µl of saline. The plate was then covered with Parafilm® (American Can Company, Greenwich, CT) to reduce evaporation. After incubation for 24 hr the emerged

Treatment coverages during the successive treatment rounds were calculated using the data of the nationwide census of 1987.

The effect of the community-wide ivermectin treatments on the transmission of onchocerciasis was evaluated by comparing parasitologic indices calculated, on the one hand, in children 5-7 years old before the first treatment round (in 1987) and, on the other hand, in children belonging to the

TABLE 2
Number of patients treated, according to sex and age, in the initial treatment area between 1987 and 1991

Age (years)	Sex	Number of patients treated				
		1987	1988	1989	1990	1991
5-9	M	305	278	228	204	271
	F	318	255	203	234	292
	Total	623	533	431	438	563

TABLE 3

Prevalence of skin microfilariae (PMF) and geometric mean microfilarial density (MFD) in untreated children before (1987) and after the community received five treatments (1992) with ivermectin*

Age (years)	1987			1992			Comparison of 1987 with 1992	
	No. snipped	PMF (%)	MFD (mf/ss)	No. snipped	PMF (%)	MFD (mf/ss)	PMF (%)†	MFD (mf/ss)†
5	47	48.9	1.7	22	13.6	0.3	<0.01	<0.05
6	54	44.4	2.6	38	28.9	1.2	NS	NS
7	50	64.0	4.7	13	23.1	0.2	<0.01	<0.01
Total	151	52.3	3.1	73	23.3	0.7	<0.0001	<10 ⁻⁹

* mf/ss = microfilariae per skin snip; NS = not significant.
† *P* values.

($P < 0.01$), but no significant change in the MFD was observed in six-year-old children ($P > 0.10$).

DISCUSSION

In the North Vina Valley, repeated treatments with ivermectin brought about a significant decrease in the overall level of onchocerciasis infection in untreated children. When evaluated by age, this decrease was significant for the 5-7-year-old children, but not for the six-year-old ones. This is

ited, on the one hand, by the presence of a range of mountains that geographically isolates the Vina Valley, and, on the other hand, by the fact that the vegetation is not favorable to wide dispersal of the blackflies. Moreover, the treatment area in the Vina Valley was extended widely after 1987. It is likely that these extensions led to an additional reduction in the infection rates of blackflies in the original area after the second treatment round.

Several factors make the results from northern Cameroon remarkable. First, in the Vina Valley, the coverage of the

points. These factors may explain that this subgroup did not come for treatment as assiduously as the other people after

I. Effect on the microfilarial reservoir and the transmission of *Onchocerca volvulus*. *Trop Med Parasitol* 40: 367-374.

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