SURVEY OF INTERMEDIATE SNAIL HOSTS OF HUMAN SCHSTOSOMES IN RE-SE1TLEMENT SITES OF WESTERN ETHIOPIA

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ABSTRACT

From 29 January to March 1985, a field survey for the snail „.ntermediate hosts of human schistosomes was conducted in 252 water bodies in 141 re-settlement sites in Wollega, Illubabor and Kafa Administrative Regions. Biomphalaria pfeifferi, the snail intermediate host for schistosoma mansoni, was collected from three water bodies in Wollega and from one water source in Kafa. The settlers in the re-settlement sites consisted of people from intestinal schistosomiasis endemic zones in the north. The habitats infested with Biomphalaria pfeifferi therefore need to be considered since they are potential foci for the establishment of the disease.

PURPOSE OF STUDY

In November 1984, i.e., during the early phase of the re-settlement programme, the Ministry of Health initiated a programme in which different institutions collaborated and worked together toward the same goal, that of disease prevention and control at relief shelters and resettlement sites. Several committees made up of members representing different fields of specializations were formed. For the prevention and control of schistosomiasis alone, a committee made up of representatives of the National Research Institute of Health, the Institute of Pathobiology and the Malaria and other Vector Borne Diseases Control Programme was entrusted with the task of determining ways and means of reducing and ultimately checking the spread of the disease. The present report is, therefore, the outcome of the initial steps taken in this direction.

METHOD

All actual and potential contact sites between man and water at each resettlement area were identified. The team, divided into two groups and equipped with snail collection gear, made a thorough search for snails on either side of each water body. The identification keys (1-4) for African and Ethiopian snails were made use of. Using the cercariometric apparatus devised by Prentice (5), 10 liters of water from, the habitats infested with Biomphalaria pfeifferi was filtered to recover cercariae. Snail infection was also checked by shedding and crushing methods. Pertinent information concerning the size and origin of settlers was obtained from records of the relevant government offices.

RESULTS

A total of 252 water bodies in 141 re-settlement sites were visited in the administrative regions of Wollega,
mubabor and Kafa. The sites visited in each administrative region are listed in Table I.
Biomphalaria pfeifferi, the potential intermediate host for Schistosoma mansoni, was recovered from three water bodies in Wollega and a stream in Kaffa region. Table 2 shows the origin and size of the population of re-settlers
at the sites where the potential snail host was collected. The description of the snail habitats are also presented in Table 3.

No evidence of snail infection was found by the shedding and crushing methods. Negative cercariometric results were obtained from the habitats in Wollega. No cercariometric test was made in the stream in Kafa because at the time the water was muddy and highly inconvenient.

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Table 1. List of Re-settlement Sites Visited for Snail Survey

Name of Site	Awraja	Woreda
Wallega – Total 72 sites		
Mechara	Nekemte	Sibusirie
Garahuda	Nekemte	Wayntuka
Ukie	Nekemte	Wayntuka
Dimtu Kersa*	Nekemte	Diga
Dimtu	Nekemte	Diga
Angergutin 2*,3,4,5	Horogudru	Gidakeremu
Konie	Arjo	Dabohana
Gondemichael	Ghimbi	Nedjo
Amuna Ale	Ghimbi	Nedjo
Kilantu Raba	Ghimbi	Nedjo
Kore-gidame	Ghimbi	Nedjo
Bulyakemi	Ghimbi	Nedjo
Waletate	Ghimbi	Nedjo
Kitu Gulo	Ghimbi	Nedjo
Amuna Dinger	Ghimbi	Nedjo
Sett No.6 and 8	Ghimbi	Menesibu
Wadyetekiltu	Ghimbi	Menesibu
Cheffechef	Ghimbi	Menesibu
Cheffechef No. 3 and 4	Ghimbi	Menesibu
Emboshay 1 and 2	Ghimbi	Menesibu
Togotora	Ghimbi	Menesibu
Bambasie No. 1-16	Assosa	Bambasie
Amba-9 No. 1 and 2	Assosa	Assosa
Amba-15	Assosa	Assosa
Mogelle No. 1-10	Assosa	Assosa
Komishiga No. 1-3	Assosa	Assosa
Selga No. 1-7	Assosa	Assosa
Kober	Assosa	Beghi
Mesha-Kash	Assosa	Beghi
Keshmando	Assosa	Beghi
Jarso Bodaso	Assosa	Bogichekorsa
Guanganka	Fhimbi	Iraguliso
Barosit	Ghimbi	Iraguliso
Illubabor – Total 51 sites		
Abol	Gambella	Gambella
Perpengo	Gambella	Abobo
Uknakigang	Gambella	Abobo
Telekoraso	Gore	Bure
Chore	Gore	Bure
Miriga	Gore	Bure

Geno	Gore	Bure
Durenimaso	Gore	Bure
Boran	Gore	Halu
Kersa	Gore	Halu
Sardo	Gore	Halu
Warokajeto	Gore	Alle
Kechibar	Gore	Alle
Yayanagebo	Gore	Didu
Gemeriera	Gore	Didu
Gemetu	Gore	Didu
Gembogachira	Gore	Didu
Kochi	Gore	Didu
Wochi	Sore-Goba	Metu
Agalo	Sore-Goba	Metu
Baroy Shenkora	Sore-Goba	Metu
Algaguracha	Sore-Goba	Metu
Workey-Dire	Sore-Goba	Metu
Koeode	Sore-Goba	Metu
Adelsegu	Sore-Goba	Metu
Adele haro	Sore-Goba	Metu
Baki	Sore-Goba	Bocho
Tubimigra	Sore-Goba	Bocho
Gedomy	Sore-Goba	Bocho
Seki	Sore-Goba	Bocho
Sodo	Sore-Goba	Bflonopa
Marukele	Sore-Goba	Bflonopa
Maruchage	Sore-Goba	Bflonopa
Wayu	Sore-Goba	Supie
Sharo	Sore-Goba	Darimu
Katabarko	Sore-Goba	Darimu
Tomonarobi	Sore-Goba	Hurumu
Charer	Sore-Goba	Hurumu
Rob-gebeya	Sore-Goba	Hurumu
Adessaboremu	Bedele	Dega
Dimagila	Bedele	Dega
Difomani	Bedele	Setema
Setemaketcha	Bedele	Setema
Onjayambo	Bedele	Setema
Gelannja	Bedele	Setema
Tolinatokalgne	Mocha	Godere
Mekakelegna	Mocha	Godere
Fiedie	Mocha	Yeki
Alamo	Mocha	Yeki
Keffa – Total 18 Sites		

Giera	Kimu	Giera
Dedessa' No. 1,2,4 and 5*	Kimu	Goma
Bege	Kimu	Limukusay
Galebusay	Jimma	Limukusay
Kishe No.1-3	Gimira	Seka
Sharsho	Gimira	Tebenjayaz
Washeka	Gimira	Sheko
Gizmeret	Gimira	Sheko
Meigema	Gimira	Guraferda
Lepie	Gimira	Guraferda
Kenema	Gimira	Guraferda
Dima	Gimira	Guraferda
Eshetwonz	Gimira	Guraferda

*Areas where Biomphalaria pfeifferi was collected.

Table 2, Description of the Settler Population at the Sites where the Potential Snail Host was Recovered

Name of re-settlement site	Population size	Orign	Date of arrival at Rfe-settlement sites
Angergution No.2 (80Kms north of Nekemte)	1417	Enderta, Raya-Azebo (Tigray)	January, 1985
Dimtu (Kersa) (54Kms west of Nekemte)	1521	Enderta, Adwa Raya-Azebo (Tigray)	January, 1985
Megele No. 1 (45Kms south of Assosa town)	1016	Yeju, Kalu, Dessie Zuria (Wollo)	December, 1985
Dedessa No.5 (36Kms north west of Jima	509	Enderta Raya-Axebo	November, 1985

Table 3. Description of the Habitats where Biomphalaria preifferi was Recovered

Name of Re-settlement Site	Type of Snail Habitat	Altitude (m)	Temperature (ºC)			ph of water	Biomphalaria Preifferi Collected
			Air	Water	Time		
Angergutin No.2	Stream	1390	30	20	10:30	7.0	40
Dimtu (Kersa)	River (Gebo)	1340	28	16	11:00	7.0	9
Mogele No.1	Stream (northern)	1520	20	16	15:00	7.0	7
Dedessa No.5	Stream	1500	27	22	12:00	6.5	167

DISCUSSION

Although a repeat investigation at a different season may give a more reliable information, the present result appears rather encouraging, since only four water habitats at four sites show potentials for the establishment of the disease and its transmission. Biomphalaria pfeifferi in Ethiopia is reported from as high as 3000 meters (5) and the parasite is established locally between about 1000 and 2200 metres (2).

The altitudes of the four snail bearing habitats therefore seem favourable for the development of both the snail and the parasite. Absence of any infected snail at the time of the investigation may be explained if we assume that the periodic low temperatures have negatively affected the development of the parasite or that the samples collected were among those not exposed to the parasite. The time of investigation might as well have been too early to detect infection in the snails. As suggested by Brown (2), low density and scattered human population may account for the absence of schistosomiasis despite the presence of the snails.

The sites identified harbour the potential snail and are at the same time densely populated with settlers from schistosomiasis endemic areas in the north. Consequently, there is a very high probability for the establishment of the disease and its transmission among the settlers and the people living around the areas. Parasitological screening of all the settlers followed by chemotheraphy for those found infected and focal mol Iusciciding may be recommended at these four sites. Similarly, a follow-up snail survey may be necessary at the areas presently visited and the sites to be opened in future.

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