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Recent patterns of *Entameba histolytica* and other intestinal parasite infections in Taegu, Korea*

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Introduction

Entameba histolytica is the common contagious parasitic species in Korea among the protozoa. The epidemiological studies of *E. histolytica* and other intestinal protozoa in Korea have been appeared after World War 1. The initial report on the existence of autochthonous cases of *E. histolytica* infections was made by Kessel(1925), who found a 41.0 per cent prevalence by four successive direct smears from 208 examinees.

Nishimura(1943) studied the incidence of intestinal parasites in Taegu and Yeongcheon areas of Kyungpook Province, and Hunter et al.(1949) in a nation-wide survey on human intestinal parasitic diseases in southern Korea summarized their findings on *E. histolytica*.

In Korea(1940-1959), the movement of population and unsanitary conditions caused by the World War Ⅱ and Korean War increased the incidence of *E. histolytica* and other intestinal parasitic infections to such an extent that it became a major public health problem of nation-wide significance.

Since the begining of the New Village(Saemaul) Movement in the third "Five-year Economic Development Plan", the Korean Government made plans to control human parasitic diseases, and carried out the mass treatment of egg positive cases. As a result, these operations resulted in a gradual decrease in the incidence of helminthic diseases. However, the data of the previous surveys revealed that *E. histolytica* and other intestinal protozoa infections still remained highly prevalent, especially in the areas with poorly controlled sanitary conditions.

In recent years, published reports on intestinal protozoa in Taegu city indicate that there is a high incidence of infection with *E. histolytica* and other intestinal protozoa among the residents. But the incidence rates found varies according to reporters, method of examinations, number of examinees, and localities even when in the same city.

This study has proceeded as a part of our investigation in the epidemiology and control of human amebiasis and other intestinal parasitic diseases.

This paper deals with infection rates of *E. histolytica* and other intestinal parasites among the residents in Taegu city, Korea.

Materials and Methods

Surveyed areas: Taegu city is situated in the southeast part of the Korean Peninsula, having an area of 455 square kilometers, and on the border there are many mountains, such as Mt. Wyalong, Mt. Biseol and Mt. Moonam, arranged in a circle that make the city seem to be a big hollow. On January 1st 1988, the area of Taegu city was divided into seven districts(ku): Central, East, West, North, South, Suseong and

The results of this study were presented at the 35th annual Meeting of the Korean Society for Parasitology(1993).

Dalseo and promoted to city status under the direct control of the Government(Fig. 1). The more detailed geographical conditions of surveyed areas were presented by Kim and Joo(1988).

Parasitological methods: During the period from October to December in 1992, this survey was carried out in the residents aged from 1 to 70 years living in 10 villages of Taegu city. A total of 1,200 specimens were collected from 591 male and 609 female residents living in 474 households.

The heterogeneity of age, sex and localities of the surveyed population for the intestinal protozoan examination are summarized in Table 1 and Figure 1.

The specimens were collected in cardboard cartons and brought to the Parasitology laboratory. The formalin-ether sedimentation technique was used to recover protozoan cysts. One drop of the sediments was first placed on a microscopic slide and one drop of Lugol's iodine solution was mixed.

The preparation was mounted with a cover slip, and the entire area was examined for cysts.

Results

The species and prevalence rates for intestinal protozoa in Taegu city are listed in Table 2. A

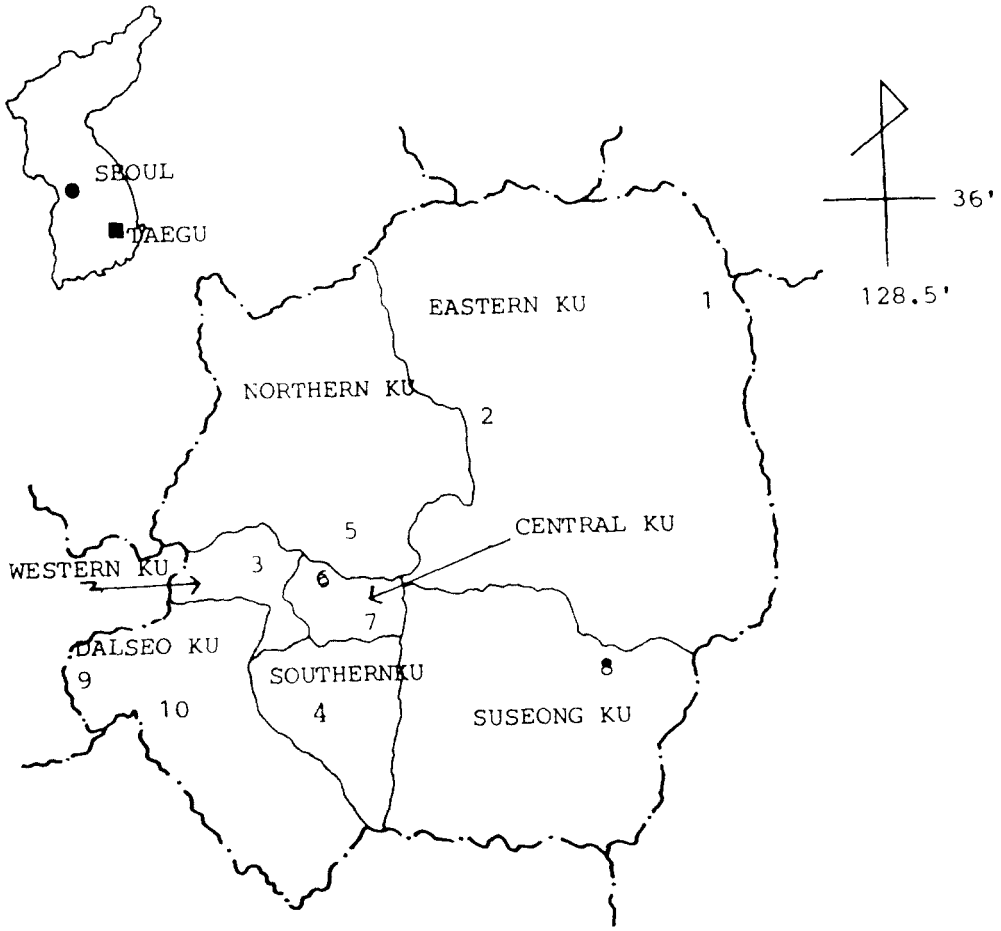

Fig. 1. Map showing the Taegu city under survey.

Table 1. Subjected household and resident for intestinal protozoa survey in Taegu city(1993)

District (Ku)	Location (Village)	Total number		Number tested	
		Household	Resident	Household	Resident
Eastern	1. Pyungkwang-dong	187	907	64(34.2)	200(22.1)*
	2. Shinam 2nd-dong	3,187	12,037	32(1.0)	80(0.7)
Western	3. Pyungli 2nd-dong	4,308	17,168	51(1.2)	120(0.7)
Southern	4. Daemyung 1st-dong	3,699	15,295	34(0.9)	80(0.5)
Northern	5. Koseong-dong	5,157	20,019	38(0.7)	80(0.4)
Central	6. Namsan 1st-dong	3,500	12,368	28(0.8)	80(0.6)
	7. Dongin-dong	1,561	5,925	30(1.9)	80(1.4)
Suseong	8. Beomyeo 4th-dong	5,029	20,468	43(0.9)	120(0.6)
Dalseo	9. Weolbae 2nd-dong	5,153	21,542	65(1.3)	160(0.7)
	10. Seongdang 1st-dong	4,197	16,244	89(2.1)	200(1.2)
Total		35,978	141,973	474(1.3)	1,200(0.8)

* Number in parentheses indicates percentage to total number of household and resident.

Table 2. Prevalence of intestinal protozoa among residents in Taegu city, Korea(1993)

Species	Male		Female		Total	
	No. infected	Percent positive	No. infected	Percent positive	No. infected	Percent positive
Entameba histolytica	3	0.5	8	1.3	11	0.9
Entameba coli	1	0.2	4	0.7	5	0.4
Endolimax nana	9	1.5	9	1.5	18	1.5
Iodameba butschlii	5	0.8	7	1.1	12	1.0
Giardia lambria	3	0.5	2	0.3	5	0.4
Total No. examined	591		609		1,200	

total of 1,200 residents, five species of protozoa were found. *E. nana* was found most frequently, the rate being 1.5 per cent among the residents, followed by *I. butschlii* with the prevalence rate of 1.0 per cent and *E. histolytica* with 0.9 per cent. As to the sex-specific rates of *E. histolytica*, *E. coli* and *I.butschlii*, females showed higher prevalence than in males, while, in case of *G. lambria*, the males were a little higher than in females.

Table 3 shows the infection rates of intestinal protozoa by sex and age groups. One or more species of protozoa were found in 47, which indicate and overall infection rate of 3.9 per cent. The age-specific rates of intestinal protozoa varied from age to age. As to the age-specific rate of *E. histolytica*, it was found to be 1.0 per cent respectively in the 0-9 and 10-19 year age groups, and no case in the 20-29 year age group. The rate subsequently increased and reached a maximum of 1.7 per cent in the 50-59 year age group.

E. nana showed much the same patterns as *E. histolytica* having its highest prevalence in the 50-59 year age group. The rate for *E. coli* and *G. lambria* were generally low in the various age groups.

Table 4 presents the results of stool examinations according to surveyed districts in Taegu city. The highest positive rate was found among the residents of Eastern district, being present in 6.8 per cent, followed by Northern district with the rate of 5.0 per cent. The Western dis-

Table 3. Prevalence of intestinal protozoa among residents in Taegu by sex and age group(1993)

Age group (Year)	Sex	No. examined	Positive rate(%)	Prevalence(%)				
				E. h	E. c	E. n	I. b	G. l
0－ 9	M	53	5.7	1.9	0	3.8	0	0
	F	52	1.9	0	0	0	1.9	0
	Subtotal	105	3.8	1.0	0	1.9	1.0	0
10－19	M	106	3.8	0	0	3.8	0	0.9
	F	100	6.0	2.0	1.0	1.0	3.0	1.0
	Subtotal	206	4.9	1.0	0.5	1.9	1.5	1.0
20－29	M	97	1.0	0	0	1.0	0	0
	F	108	1.9	0	0.9	0	0.9	0
	Subtotal	205	1.5	0	0.5	0.5	0.5	0
30－39	M	122	3.3	0	0	0.8	1.6	0.8
	F	125	6.4	2.4	0.8	3.2	0	0
	Subtotal	247	4.9	1.2	0.4	2.0	0.8	0.4
40－49	M	109	6.4	1.9	0.9	0.9	1.9	0.9
	F	103	3.9	1.0	0	1.0	1.0	1.0
	Subtotal	212	5.2	1.4	0.5	0.9	1.4	0.9
50－59	M	60	1.7	0	0	1.7	0	0
	F	61	4.9	3.3	0	3.3	1.6	0
	Subtotal	121	3.3	1.7	0	2.5	0.8	0
60－	M	44	2.3	0	0	2.3	0	0
	F	60	3.3	0	1.7	1.7	0	0
	Subtotal	104	2.9	0	1.0	1.9	0	0
Total	M	591	3.6	0.5	0.2	1.5	0.8	0.5
	F	609	4.3	1.3	0.7	1.5	1.1	0.3
	Total	1,200	3.9	0.9	0.4	1.5	1.0	0.4

trict was the least rate, being found in 1.7 per cent. In *E. histolytica* infection, the highest prevalence was 2.1 per cent in Dalseo district, but no amebic cysts was found from Western and Southern districts. In *E. nana* infections, the highest prevalence was 3.8 per cent in Dalseo district, and the all surveyed districts were found. *E. coli* was found from three districts, Eastern, Suseong and Dalseo, and *G. lambria* was found from two districts, Eastern and Dalseo, but no these species was found from other districts of Taegu city.

Table 5 shows the prevalence of *E. histolytica* for both individuals and the families by villages of Taegu city. Eleven individuals were found to be infected with *E. histolytica*, this amounting to 0.92 per cent of the residents. The highest prevalence of *E. histolytica* was found among the residents of Pyungkwang village, being present in 3.0 per cent. Eleven or 2.32 per cent of 474 families examined had one individual with *E. histolytica*. As in the case of the protozoa, the family prevalence rate of *E. histoytica* was higher than the individual rate.

Table 4. Prevalence of intestinal protozoa according to surveyed district in Taegu city(1993)

District (Ku)	Sex	No. examined	Positive rate(%)	Prevalence(%)				
				E. h	E. c	E. n	I. b	G. l
Eastern	M	134	6.7	0.7	0	3.7	1.5	0.7
	F	146	6.8	3.4	2.1	1.4	2.1	0
	Subtotal	280	6.8	2.1	1.1	2.5	1.8	0.4
Western	M	72	1.4	0	0	0	1.4	0
	F	48	2.1	0	0	2.1	0	0
	Subtotal	120	1.7	0	0	0.8	0.8	0
Southern	M	43	2.3	0	0	2.3	0	0
	F	37	2.7	0	0	0	2.7	0
	Subtotal	80	2.5	0	0	1.3	1.3	0
Northern	M	35	5.7	2.9	0	2.9	0	0
	F	45	4.4	0	0	2.2	2.2	0
	Subtotal	80	5.0	1.3	0	2.5	1.3	0
Central	M	72	1.4	0	0	1.4	0	0
	F	88	4.5	1.1	0	2.3	1.1	0
	Subtotal	160	3.1	0.6	0	1.9	0.6	0
Suseong	M	64	4.7	0	1.6	0	3.1	0
	F	56	3.6	1.8	0	1.8	0	0
	Subtotal	120	4.2	0.8	0.8	0.8	1.7	0
Dalseo	M	171	2.3	0.6	0	0.6	0	1.2
	F	189	3.2	0.5	0.5	1.1	0.5	1.1
	Subtotal	360	2.8	0.6	0.3	3.8	0.3	1.1

Remark : E. h : *Entameba histolytica* E. c : *Entameba coli*
E. n : *Endolimax nana* I. b : *Iodameba butschlii*
G. l : *Giardia lambria*

Table 5. Prevalence of *Entameba histolytica* according to surveyed locations of Taegu city, by individuals and by families(1993)

District (Ku)	Location (Vallage)	Prevalence by individuals		Prevalence by families	
		No. examined	Percent positive	No. examined	Percent positive
Eastern	Pyungkwang	200	3.0	64	9.38
	Shinam 2nd	80	0	32	0
Western	Pyungli 2nd	120	0	51	0
Southern	Daemyung 1st	80	0	34	0
Northern	Koseong	80	1.25	38	2.63
Central	Namsan 1st	80	1.25	28	3.57
	Dongin	80	0	30	0
Suseong	Beomyeo 4th	120	0.83	43	2.33
Dalseo	Weolbae 2nd	160	1.25	65	3.08
	Seongdang	200	0	89	0
Total		1,200	0.92	474	2.32

Table 6. Prevalence of intestinal helminths among residents in Taegu city(1993)

Species	Male		Female		Total	
	No. infected	Percent positive	No. infected	Percent positive	No. infected	Percent positive
Ascaris lumbricoides	0	0	1	0.16	1	0.08
Trichuris trichiura	3	0.51	2	0.33	5	0.42
Clonorchis sinensis	5	0.85	2	0.33	7	0.58
Metagonimus yokogawai	11	1.86	4	0.66	15	1.25
Total No.examined	591		609		1,200	

Table 7. Frequency of single or multiple infections by formalin-ether sedimentation technique in 1,200 residents, Taegu city(1993)

Species found	No.	%
Single infection	70	5.83
Entameba histolytica	9	0.75
Entameba coli	3	0.25
Endolimax nana	17	1.42
Iodameba butschlii	9	0.75
Giardia lambria	5	0.42
Ascaris lumbricoides	1	0.08
Trichuris trichiura	5	0.42
Clonorchis sinensis	6	0.50
Metagonimus yokogawai	15	1.25
Double infection	3	0.25
E. histolytica & *E. coli*	1	0.08
I. butschlii & *C. sinensis*	1	0.08
E. nana & *I. butschlii*	1	0.08
Triple infection	1	0.08
E. histolytica, *E. coli* & I. butschlii	1	0.08
Total number positive	74	6.17

The prevalence of intestinal helminths found in a single examination of the specimens obtained during the survey are given in Table 6. The overall positive rate for intestinal helminths was found to be 2.3 per cent. *M. yokogawai* was found most common, in 1.25 per cent of the residents, following by *C.sinensis* with 0.58 per cent. *A. lumbricoides* was found in only 0.08 per cent, and hookworm and *Trichostrongylus* species were absent.

Table 7 lists the single or multiple infections with intestinal protozoa and helminths in the same individuals. Single infections were also relatively common, in 5.83 per cent of the residents, followed by double infections in 0.25 per cent and triple infections in one case or 0.08 per cent.

Discussion

Since Losch(1875) first described on the discovery of *E. histolytica* trophozoite from dysenteric stools of a patient in St. Petersburg, Russia, the biological, pathological, clinical and epidemiological studies on the amebiasis have been carried out by many investigators in Korea as well as in other countries of the world. The fact that patients with amebiasis are present among the residents in Korea for a long time, and a disease called "E-jil" in the past is now accepted to be nothing but *E. histolytica* infections.

Little factual work on *E. histolytica* was done before the end of World War II, and some studies on the incidence of the amebiasis among the residents in the Seoul area were conducted by Japanese and other foreign workers in Korea (Kessel, 1925 ; Choy, 1926 ; Chiba, 1931 ; Kuwabara, 1932 ; Ogura, 1933 ; Takemura, 1934 ; Nishimura, 1943).

They found 1.5−47.0 per cent incidence by one or six repeated examinations with the direct smear method in the Seoul area, and also indicated that a reliable data of *E. histolytica* infections would be obtained by repeated examinations.

After the Korean war, the biological, epidemiological and therapeutic studies on the parasitic amebae in Korea have shown a marked advance with the efforts of medical parasitologists and public health officials due to continous efforts and the concerns of the Government. In the studies on human intestinal protozoa among the residents in Taegu and Kyungpook Province, there have been some investigations since the establishment of the third "Five-year economic development plan", and listed in Table 8. In all of these surveys, only one time examination of feces by means of similar laboratory procedure was made from each individual, and the overall positive rates of intestinal protozoa were found to be relatively high, ranging from 7.4 to 47.3 per cent

Results from this survey indicate that, of 509 male and 609 female residents living in 474 households, 3.6 per cent and 4.3 per cent had positives for intestinal protozoa, respectively. In practice, this is no indication of the true positive rates among the residents in Taegu city because the individuals for this survey are not adjusted for the proportion of the residents belonging to each age, sex, socioeconomics and social situations, and because a single examination of the Lugol's iodine stained technique is not sufficient to obtain a reliable infection rates of intestinal protozoa. From the data shown in Table 8, it is noted that, although higher prevalecne is expected if examinations were repeated, our figures show indication of diminution in the parasitic amebae infections among the residents of Taegu city and Kyungpook Province during the period of the past 20 years.

Thers is good reason to believe that the diminution in the infection cases is due to improvements of sanitary conditions and dwellings by New Community Movement in combinations with extensive public health education, specific chemotherapeutic administrations, and attention to personal hygiene.

The general prevalence of *E. histolytica* in the present survey, including all age and sex groups, was 0.9 per cent, and is far less than those found in previous surveys made in Taegu and Kyungpook Province(Choi et al., 1971 ; Choi and Hwang, 1980 ; Ha and Joo, 1987 ; Kim and Joo, 1988 ; Kim et al., 1988 ; Joo and Lee, 1992). The main factors contributing to the diminution of *E. histolytica* and other intestinal protozoa are considered to be the adequate, safe supplies of water for drinking and household purposes obtained by filteration, sedimentation and/or sterilization, and protection from contamination of human excreta used as fertilizer and from infected foodhandlers, flies, cockroaches, and some other coprophagous animals. Such considerations were also recognized by Kim and Joo(1988), Kim et al.

Table 8. The reported prevalences of intestinal protozoa among residents in Taegu and Kyungpook Province, Korea

Source	No. tested	positive rate(%)	Prevalence(%)					Location	Group tested
			E. h	E. c	I. b	E. n	G. l		
Nishimure (1943)	303	-	9.9	24.1	4.0	-	6.6	Taegu & Yeong cheon	Residents
Lee (1970)	549	28.4	3.6	24.0	-	5.5	1.5	Seonsan & Wiseong	Residents
Choi et al. (1971)	5,288	35.7	11.9	15.3	0.5	7.3	0.4	Taegu	Paitents*
Kim et al. (1971)	203	47.3	9.9	28.1	1.0	11.8	6.4	Kyung san	Residents
Im et al. (1972)	860	-	4.2	6.1	0.6	5.3	2.8	Taegu	Military Personnels
Cho et al. (1973)	695	58.7	5.5	-	-	-	-	Ullung do	Residents
Lee (1979)	860	-	45.5	7.3	1.5	2.4	-	Taegu	Patients
Choi & Hwang(1980)	731	-	26.9	4.8	1.1	1.4	-	Taegu & Yeong duck	School children
Kwon & Choi(1983)	2,083	-	54.6	8.4	0.8	1.2	-	Taegu	Patients
Ha & Joo (1987)	819	8.8	5.4	2.2	0.4	2.3	1.9	Ulchin	Residents
Kim & Joo (1988)	2,381	-	4.2	0.5	0.9	1.5	0.5	Taegu	Residents
Kim et al. (1988)	2,500	-	3.4	0.8	1.4	4.8	-	Taegu	School children
Joo & Lee (1992)	1,062	7.4	3.1	0.8	0.2	3.5	0.2	Kolyung	Residents
Authors (1993)	1,200	3.9	0.9	0.4	1.5	1.0	0.4	Taegu	Residents

* Patients : In-and outpatiemts in Kyungpook National University hospital

(1988), and Joo and Lee(1992).

In the sex-specific rates Kim et al.(1971) in a nation-wide survey of the cystic stage of *E. histolytica* reported a higher prevalence in female with 13.1 per cent than in male with 6.7 per cent in Kyungsan county. The data by Kim and Joo (1988) showed the 4.4 per cent to be female and 4.0 per cent male, and Joo and Lee(1992) examined 33 cases of *E. histolytica* infections among the residents, and found that females was little higher than in males. Our figure in general is similar to data reported by some investigators studying in other districts of Kyungpook Province(Kim et al., 1971 ; Choi and Hwang, 1980 ;

Ha and Joo, 1987 ; Joo and Lee, 1992). Although many other reports on the difference in the prevalence by sex have been available, the results obtained are not all in agreement.

It is may be due, in part, to the habits and physical conditions of each sex, and the environmental factors.

Irrespective of sex, age distribution of the prevalence was 1.0 per cent in 0−9 year age and 10−19 year age groups, respectively. It subsequently increased and reached a maximum of 1.7 per cent in 50−59 year age group, but there was no case in 20−29 year age and in those over the age of 60 years. A similar patterns was described with Kim et al.(1971) in a nation−wide survey and Kim and Joo(1988) in Taegu city.

In earlier studies on the family infections, Cho et al.(1967) conducted a survey for *E. histolytica* infectios by household in Cheju-do, and reported that the positive rate was 51 or 78.5 per cent among 65 households examined. Among them, only 12 households or 23.5 per cent had single positive cases among their families, and 39 or 78.5 per cent had 2−5 individuals infected in the same family. They also stressed that family infection was likely to be common in poorly controlled environment, and that mother might play an important role as source of amebic infection among families.

Recently Kim and Joo(1988) reported that 76 or 13.3 per cent of 573 families examined had one or more individuals with *E. histolytica*. In the persent survey in which a total of 1,200 individuals constituting 474 households examined, the familial prevalence of *E. histolytica* was found to be 2.32 per cent, an average of 1.0 case of amebiasis per family.

Our figures are considerable lower than those recorded in similar previous surveys(Cho et al., 1967 ; Kim and Joo, 1988).

As also indicated by Kim and Joo(1988), it was in this study that if one member of a family was found infected by *E. histolytica*, thers was a probability that one third and/or one fourth of all members of his family would be shown to be infected.

As shown in Table 8, *E. nana* was the most predominant species among the intestinal protozoa and the prevalence was 1.5 per cent in this survey.

Another species such as *E.coli* and *I. butschlii* showed variable pervalence according to the reporters, examination methods and areas even when in the same Province. *G. lambria* was one of the known pathogenic flagellates in Korea.

Choi et al.(1971) reported 0.4 per cent prevalence of 5,288 specimens in Kyungpook National University hospital, whereas, Kim et al.(1971) and Ha and Joo(1987) reported 6.4 per cent and 1.9 per cent, respectively. Our figures in general are very similar to data reported by Choi et al. (1971) and Kim and Joo(1988).

As a part of the survey of *E. histolytica* and other intestinal protozoa among residents, the infection rates for intestinal helminths have derived. The overall positive rate of intestinal helminths in this survey, 2.3 per cent of total individuals examined, are markedly decreased as compared with earlier data reported by Choi et al.(1970), Joo(1984), Joo and Baik(1986), Kim et al.(1988), and Joo and Lee(1992), Such a marked diminution of the soil−transmitted helminths in Taegu city were considered to be the increasing recognition of importance of parasitic diseases, i. e., public health educations, specific anthelmintic administrations and improved hygienic and dietary life.

The infection rate of *C. sinensis* in this survey was found to be 0.58 per cent, and there was a significant difference in the rate between males and females.

The former was 0.58 per cent and the latter 0. 33 per cent. The higher prevalence in males than in females suggest that it is probably related of some differences in the opportunities of eating raw and/or uncooked fresh−water fish and social customs. Such consideration was also recognized by Kim(1974), Joo and Hong(1991), Hyun(1992), and Joo and Lee(1992).

In the present survey *M. yokogawai* infections were found in 15 cases, with prevalence of 1.25 per cent. The sex-specific rate for this fluke, with the prevalence significantly higher in males than in females, is in agreement with previous findings(Chung and Choi, 1979 ; Joo and park, 1982 ; Woo, 1992), and suggest that this is considerably related to some difference in the opportunities of eating raw fish as observed in case of *C. sinensis* infections(Joo and Hong, 1991).

The frequency of single and/or multiple infections found in this survey is dissimilar to that reported by Kim et al.(1971) in a nation-wide parasite surveys, and also differs from the patterns in Kyungpook National hospital patients(Choi et al., 1971). In these studies double and triple infections were most frequent, whereas, single infections was the highest percentage in this survey.

Summarizing the results, though it is difficult to generalized for the whole city, one can safely conclude that the infection rates of *E. histolytica* and other intestinal parasites among the residents in Taegu city are still high.

However, eradication of these parasitic diseases seem to be possible with improvement of environment and dietary life, in combination with extensive public health educations and administration specific drugs.

Summary

Recent patterns of *E. histolytica* and other intestinal parasite infections among the residents in Taegu city were studied during the period from October to December in 1992, and compared with the data reported previously in the same area. Among the specimens examined, one or more species of intestinal parasites were found in 74, with a infected case of 47 in protozoa and 27 in helminth, revealing an overall positive rates of 3.92 per cent and 2.25 per cent, respectively. The infection rate for *E. histolytica* among the residents was 0.9 per cent, with a prevalence of 0.5 per cent in males and 1.3 per cent in females.

As to the age specific rate of infections varied from age to age. Compared with the previous reports, *E. histolytica* infections are now much less prevalent.

E. nana was the most frequently, the rate being 1.5 per cent, followed by *M. yokogawai* with the rate of 1.25 per cent and *I. butschlii* with 1.0 per cent.

The infection rates for *E. coli* and *C. sinensis* was 0.4 per cent and 0.58 per cent, respectively. Single infections were found more frequently than multiple infections. The results of this survey generally indicate clear evidence that the infection rates of *E. histolytica* and other intestinal parasites among the residents in Taegu city are lower than those reported by earlier investigators, due to the common use of specific chemotherapeutics in combination with extensive public health education and improvement of environment.

Key Words: *E. histolytica*, Taegu, epidemiology, amebiasis, prevalence

References

Chiba E : Studies on various intestinal protozoa of man in Chosen. 8. A statistical survey for human intestinal protozoa in Chosen, Japan, with special reference to the cyst carriers of *Entameba histolytica*(in Japanese). J Chosen Med Assoc 1931 ; 21 : 508-552.

Cho KM, Kim OK, Hong SO, Chung PR, Soh CT : Incidence of *Entameba histolytica* and hepatomegaly in Cheju Do(in Korean). Korean New Med J 1967 ; 7 : 605-612.

Choi DW, Hwang JT : Demonstration of *Entameba histolytica* cyst from urban and rural school children. Korean J Parasit 1980 ; 18 : 241-246.

Choi DW, park SD, Kim JW, Ahn DH, Kim YM : Intestinal parasite survey of Kyungpook National University hospital patients. Korean J Parasit 1971 ; 9 : 47-54.

Choy D : Examination of intestinal protozoa and intestinal helminths among Koreans(in Japanese). Chosen Igakkai Zasshi 1926 ; 66 : 1-10.

Chung BJ, Choi DW : Metagonimiasis in Yeongdeck area, Kyungpook Province, Korea. Kyungpook Univ Med J 1979 ; 20 : 207-212.

Ha JH, Joo CY : Epidemiological studies of *Entameba histolytica* and other intestinal parasites in UIchin county, Kyungpook Province, Korea. Keimyung Univ Med J 1987 ; 6 : 26-33.

Hunter GW III, Ritchie LS, Chang IC, Rolph JR WD, Manson HC, Szewczak J : Parasitological studies in the Far East. 7. An epidemiological survey in southern Korea. J Parasit(index for December suppl.) 1949 ; 35 : 41.

Hyun MC : Epiemiological studies of *Clonorchis sienensis* in the upper stream areas of Naktong river. These Graduate School, Keimyung Univ 1992 ; 1-26.

Joo CY : Recent patterns of intestinal helminth infections among the residents in Taegu city, Korea. Korean J Parasit 1984 ; 22 : 109-115.

Joo CY, Baik DH : Prevalence of intestinal helminth infections in Kyungpook Province, Korea. New Med J 1986 ; 29 : 1083-1092.

Joo CY, Choi DW : Newly found endemic foci of *Clonorchis sinensis* in Kyungpook Province, Korea. Korean J Parasit 1974 ; 12 : 111-118.

Joo CY, Hong YA : Epidemiological studies of *Clonorchis sinensis* in the vicinity of river Ahnseong, Kyungpook Province, Korea. Jap J Parasit 1991 ; 40 : 542-552.

Joo CY, Lee DS : Recent patterns of intestinal parasite infections among residents in Kolyung county, Kyungpook Province, Korea. Keimyung Univ Med J 1992 ; 11 : 550-560.

Joo CY, Park SG : Epidemiological survey of *Metagonimus yokogawai* in UIju county, Kyungnam Province, Korea. Kyungpook Univ Med J 1992 ; 23 : 1-9.

Kessel JF : A preliminary report on the incidence of human intestinal protozoan infection in Seoul, Korea. China Med J 1925 ; 33 : 975-982.

Kim CH, Park CH, Koh TY, Soh CT : Prevalence of intestinal parasites in Korea. Yonsei Rep Trop Med 1971 ; 2 : 30-43.

Kim DC : Ecological studies of *Clonorchis sinensis* : Endemicity and propagation of *Clonorchis* in high and low endemic areas in Korea. Yonsei Rep Trop Med 1974 ; 5 : 3-44.

Kim DS, Joo CY : Epidemiological studies of *Entameba histolytica* and other intestinal protozoa in Taegu city, Korea. Keimyung Univ Med J 1988 ; 7 : 7-17.

Kim SJ, Kwon TC, Kang CM, Baik DH, Joo CY : Prevalence of *Entameba histolytica* in school children of Taegu city, Korea. Keimyung Univ Med J 1988 ; 7 : 219-226.

Kuwabara N : Examination of intestinal protozoa and helminths of residents in Seoul(in Japanese). Mansen no IKai 1932 ; 132 : 16-26.

Lee JS : Study on the status of intestinal protozoan infections in Koreans(in Korean). J Health Fellowship foundation 1969 ; 3 : 1-6.

Losch F : Massenhafte Entwicklung von Amoeben in Dickdarm. Virchow's Arch Path Anat 1875 ; 65 : 195-211.

Nishimura S : Incidence of intestinal parasites in Taegu and Yeongcheon areas(in Japanese). J Taegu Med Coll 1943 ; 4 : 40-50.

Ogura K : Results of examination for intestinal parasites and ova of *Enterobius vermicularis* in the first grades of Seoul elementary school and public schools(in Japanese). Mansen no IKai 1933 ; 148 : 26-37.

Takemura S : Microscopical examination for intestinal parasites of 500 out and in patients in our department(in Japanese). J Med Coll Keijo 1934 ; 4 : 115-121.

Woo JJ : Epidemiological survey of *Metagonimus yokogawai* in Kolyung county, Kyungpook Province, Korea. These Graduate School, Keimyung Univ 1992 ; 1-34.

＝國文抄錄＝

大邱市民들에 있어서 痢疾 아메바 및 腸內 寄生蟲의 最近 感染狀*

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大邱市民들에 있어서 痢疾 아메바 및 腸內 寄生蟲의 最近 感染狀을 알아보기 위해 1992年 10月부터 12月까지 大邱市內 10個洞 住民을 調査對象으로 選定하여 集卵法으로 原蟲類 胞囊과 蠕蟲卵 檢事를 하였다.

總被檢者 1,200名中 腸內 原蟲類 感染率은 3.92%, 蠕蟲類 感染率은 2.25%였다.

痢疾 아메바의 感染率은 0.9%였으며, 性別로는 男性에서는 0.5%, 女性에서는 1.3%였으며, 年令群別로는 많은 差異가 있었다. 小型 아메바의 感染率은 1.5%였으며, 沃度 아메바는 1.0%였다. 橫川吸蟲의 感染率은 1.25%로 肝吸蟲보다 그 率이 높았다. 混合 寄生狀에 있어서는 1種 寄生이 가장 많았으며, 3種 寄生은 1例였다.

以上의 成績으로 미루어 보아 大邱市民들에 있어서 痢疾 아메바 및 腸內 寄生蟲 感染率은 아직도 高率임을 알았다.