

## Infection status of *Clonorchis sinensis* in residents of Hamyang-gun, Gyeongsangnam-do, Korea

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**Abstract:** Oriental liver fluke (*Clonorchis sinensis*) infection was surveyed among residents of Hamyang-gun, Gyeongsangnam-do, Korea during the period of January 2001 to March 2002. Total 1,041 stool samples were collected from residents who visited Public Health Center and its branches in Hamyang-gun and examined using formalin-ether sedimentation method. The overall egg positive rate was 16%, male showing higher positive rate (21%) than female (10%). The age group of 30 to 50 years had the highest egg positive rate of *C. sinensis* from 20% to 22%. The positive examinees were treated with praziquantel and educated individually to prevent reinfection. Egg positive rate in this area was decreased when compared with results recorded in the past, however, still remained more than 10%. This study suggests that periodic examination, treatment as well as education of residents should be continued and systematized.

**Key words:** *Clonorchis sinensis*, egg positive rate, residents, Hamyang-gun

We investigated the status of egg positive rate of *Clonorchis sinensis* of residents in Hamyang-gun which is located along the Nam-Gang (river), a tributary of the Nakdong-Gang (river). Infection rate of helminthes in that area has been reduced continuously since 1970s, especially, soil-transmitted intestinal parasites are mostly diminished. In case of *C. sinensis*, however, egg positive rate was remained high as before (MHW and KAH, 1992). The basin of the Nakdong-Gang is well known as an endemic area of clonorchiasis for a long time. *C. sinensis* egg positive rate of Sancheong-gun, neighboring area of Hamyang-gun, was 37.8%

(Lee et al., 1992). Egg positive rate of primary school children in Hamyang-gun was 0.56% (Kim et al., 2001). However, a small number of adult samples showed more than 50% egg positive rate (not published). It is highly likely that most residents had eaten raw fish, therefore, many residents were expected to reveal egg positive rate of *C. sinensis*. We performed this survey to study the status of egg positive rate to compare the result with the previous data and to treat infected residents.

Total 1,041 stool samples were collected from residents who visited Public Health Center located in Hamyang-eup and its branches located in Hamyang-gun (Baecjeon, Seosang, Seoha, Ahn-ui, Sudong, Macheon, Eurim-myeon) from January 2001 to March 2002 and were examined using formalin-ether sedimentation method. By the result of examination, *C. sinensis* egg positive examinees were treated with praziquantel. Total egg

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**Table 1.** Egg positive rate of *Clonorchis sinensis* by age groups

Age group (year)	No. positive (%)			No. positive/No. examined (%)
	Male	Female	unidentified <sup>a)</sup>	
0-9	-	1	-	1/7 (14.3)
10-19	-	-	-	0/9 ( 0.0)
20-29	1	1	-	2/14 (14.3)
30-39	15	3	2	20/91 (22.0)
40-49	24	8	1	33/165 (20.0)
50-59	20	8	-	28/182 (15.4)
60-69	26	7	-	33/210 (15.7)
70-79	8	2	-	10/70 (14.3)
80-	-	-	1	1/4 (25.0)
unidentified <sup>a)</sup>	2	1	22	25/289 ( 8.7)
Total	104 (21.0)	36 (10.3)	26 (13.1)	166/1041 (16.0)

<sup>a)</sup>unidentified: age or sex of examinees was not identified.

positive rate of *C. sinensis* was 16% (Table 1). The egg positive rates of males and females were 21% and 10.3%, respectively. The distinction of sex of 199 samples was not identified and those showed 13.1% egg positive rate. Egg positive rate of the age group more than 80 years old was the highest (25%) but it seems that the number of examined samples was insufficient (Table 1). Egg positive rates of 30 to 39 years old and 40 to 49 years old were 22% and 20%, respectively. We confirmed that the manhood had strong tendency for infection of *C. sinensis*. Also, egg positive rate of all age groups except teenage revealed more than 14% (Table 1). This result suggests that raw fish eating was prevailed among residents. Egg positive rate of residents in Hamyang-gun was much higher than the average 1.4% of whole country (MHW and KAH, 1997). Lee et al. (2002) and Joo et al. (1997) reported that egg positive rates of residents in the basin of the Geum-Gang (river) and Gyeongsangbuk-do were 9.3% and 7.7%, respectively. These areas were also well known as endemic areas of clonorchiasis. Hamyang-gun, the basin of the Nam-Gang, revealed high egg positive rate compared with other endemic areas. Also, egg positive rate of Hamyang-gun was higher than 9.5% of Gyeongsangnam-do reported by MHW and KAH (1987). We presumed that Hamyang-gun was isolated from other country and pollution level of river was relatively low. Egg positive rate of male was twice as high as than that of female. This result also suggests that

males have more chances of raw fish eating together with alcoholic drinks. Therefore, it is important to control clonorchiasis of males. The active age group ranging from 30 to 50 years old revealed the highest positive rate (Table 1), in agreement with the similar egg positive rate of *C. sinensis* reported by Lee et al. (1993) and Joo et al. (1997) who surveyed in the Geum-Gang and Gyeongsangbuk-do. It has been suggested that the manhood have more active habit of raw fish eating and we also consider that consistent high egg positive rate of *C. sinensis* is due to habit of raw fish eating plus ignorance of clonorchiasis. Huh and Huh (1993) described that soldiers from Gyeongsangnam-do showed high egg positive rate in investigation of soldiers of Whacheon-gun. We could confirm that management in endemic areas is the most important to control clonorchiasis. This study suggests that periodic examination, treatment and education of residents should be continued and systematized.

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