

Egg positive rates of *Clonorchis sinensis* and intestinal helminths among residents in Kagye-ri, Saengbiryang-myon, Sanchong-gun, Kyongsangnam-do

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Abstract: Stools of the residents in a village in Saengbiryang-myon, Sanchong-gun, Kyongsangnam-do were examined for the eggs of intestinal helminths. In 1987, infection rate of 76 residents by *Clonorchis sinensis* was 80.3% with mean eggs per gram of feces (EPG) 27,781. *C. sinensis*-infected persons were treated once with praziquantel 60 mg/kg, *q.i.d.* Seventeen persons (22.4%) infected by *Metagonimus yokogawai* was coinfecting with *C. sinensis*. In 1993, *C. sinensis* egg positive rate was 48.4% with mean EPG 5,929. Reinfection rate of follow-up cases by *C. sinensis* was 55.2% during 5 years and 5 months. Infection rate by *M. yokogawai* was 3.2%. This village was an endemic focus of clonorchiasis occurring reinfection high.

Key words: *Clonorchis sinensis*, intestinal helminths, prevalence, reinfection, endemic focus

During last two decades, soil-transmitted helminthiasis represented by ascariasis has been decreased continuously in Korea. It appeared to be lower than 1% in 1992. However, egg positive rate of *Clonorchis sinensis* was decreased rather steadily from 4.6% in 1971 to 2.6% in 1981 and 2.2% in 1992 (the Ministry of Health and Social affairs and the Korea Association of Health (MHAS & KAH), 1992). Clonorchiasis has occurred and formed endemic areas along basins of rivers, especially of the Naktonggang (River), in Korea (Seo *et al.*, 1981; Bae *et al.*, 1983). Authors did this work to find an endemic focus and to estimate a reinfection rate in the focus.

A small village in the vicinity of headwater of the Namgang (River), Kagye-ri Saengbiryang-myon, Sanchong-gun, Kyongsangnam-do, was

arbitrarily selected, and stools were collected from residents at November, 1987 and at April, 1993. Stool specimens were examined once by formalin-ether concentration method and quantitatively once by modified Kato's cellophane-thick smear method (Hong *et al.*, 1992).

In 1987, residents infected by *C. sinensis* were 61 cases in number (80.3%) (Table 1). Eggs per gram of feces (EPG) in *C. sinensis* infecteds ranged from 27 to 327,915 with mean value 27,781. Heavy infection, EPG 10,000-29,999, cases were 10 (16.4%) and very heavy infections, over EPG 30,000, were 12 (19.7%). They were treated selectively with praziquantel 60 mg/kg of body weight, *q.i.d.*, with 6-hour interval. Infected persons by *Metagonimus yokogawai*, 17 cases (22.4%), were all coinfecting with *C. sinensis*. Of 10 *Trichuris trichiura*-infected persons (13.2%), 8 ones were coinfecting with *C. sinensis*. Mean

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Table 1. Positive rate of intestinal helminth eggs among residents in Kagye-ri, Saengbiryang-myon, Sanchong-gun, Kyongsangnam-do

Parasite	No. of egg positive cases (%) in	
	1987	1993
No. of examined	76	62
<i>Clonorchis sinensis</i>	61 (80.3)	30 (48.4)
<i>Metagonimus yokogawai</i>	17 (22.4)	2 (3.2)
<i>Ascaris lumbricoides</i>	0	1 (1.6)
<i>Trichuris trichiura</i>	10 (13.2)	0
Hookworm	1 (1.3)	0
Total	63 (82.9)	30 (48.4)

EPG of *T. trichiura*-infecteds was 65 with range 21-105. To the trichuriasis cases, single dose of oxantel pamoate 20 mg/kg was administered.

In 1993, *C. sinensis*-egg positives were 30 in number (48.4%). EPG was decreased to 5,929 in mean and to 27-37,935 in range. Heavy and very heavy infection cases were also decreased to 2 (6.7%) and 3 (10.0%) respectively. Twenty-nine stool specimens were collected from the cases treated with praziquantel in 1987. Nineteen (55.2%) of them were positive for *C. sinensis* egg and considered to be reinfected during 5 years and 5 months after praziquantel treatment. Of the followed-up persons, 10 males (71.4%) and 6 females (40.0%) were reinfected. Egg positive rate of *M. yokogawai* was 3.2% (Table 1).

C. sinensis infection rate of residents in the rural area was almost equivalent between 1986 and 1992 by 4.6% and 4.5% respectively. In rural areas in Kyongsangnam-do, contrast to the nationwide prevalence of *C. sinensis* infection, the infection rate increased from 9.5% in 1986 to 14.5% in 1992 (MSAH & KAH, 1986 & 1992). The infection rate at the surveyed village decreased significantly, but it was much higher than in other rural areas, even than at villages in the Namgang (River) basin (Bae *et al.*, 1983). The surveyed village is considered to be a highly endemic focus of clonorchiasis in Kyongsangnam-do.

Treatment of clonorchiasis with a dosage of praziquantel, 30 mg/kg three times a day showed 91.4% of parasitological cure rate and 99.9% egg reduction rate (Lee, 1984). After the treatment of the *C. sinensis*-infecteds with

praziquantel, they were cured from clonorchiasis. Some of them were considered to be reinfected by eating raw freshwater fish caught in the river near the surveyed village. The annual reinfection rate by *C. sinensis* in the village was calculated as about 10.0%. Under this reinfection pressure, restoration of *C. sinensis* infection at the village was estimated to take about 8 years after the praziquantel treatment. It is suggested that the high reinfection rate as occurring in this village might be a reason the nationwide infection rate by *C. sinensis* is not decreased but looks persisting against control in Korea.

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=국문초록=

경남 산청군 생비량면 가계리 주민의 간흡충과 장내 율충류 총란 양성율

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경남 산청군 생비량면 가계리 주민의 대변검사를 modified Kato's cellophane thick smear와 formalin-ether concentration technique로 1987년 11월과 1993년 4월에 실시하였다. 1987년, 주민 76명 중 간흡충 감염자는 61명(80.3%)이었으며 EPG 평균은 27.781이었다. 간흡충 총란 양성자들에게 praziquantel 60 mg/kg을 1회 투여하였다. 요꼬가와흡충 감염자는 17명(22.4%)이었으며 간흡충에 동시감염되어 있었다. 1993년, 간흡충 감염율은 48.4%이었으며 평균 EPG는 5,929이었다. 추적조사된 주민중 55.2%가 5년 5개월 동안에 간흡충에 재감염되어 있었다. 요꼬가와흡충 감염자는 3.2%이었다. 이 부락은 간흡충의 재감염이 높게 일어나고 있는 유행지이었다.

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기생충학잡지 32권에 게재된 논문 원고의 상호심의(Peer Review)에 수고하여 주신 다음 여러 선생님께 감사드립니다. 국내에서 참여하신 선생님은 50분이요, 외국인 5분이 수고하였습니다. 바쁘신 중에도 시간을 내어 접수된 논문에 대하여 날카롭게 지적하면서 보다 합리적으로 수정하도록 의견을 개진하여 주셔서 훨씬 나은 모습의 논문이 인쇄되도록 협조하여 주신 데에 진심으로 감사드립니다. 편집 위원회에서는 앞으로도 더 많은 분이 참여하시도록 노력할 예정이며, 특히 국내에 마땅한 심의위원이 없는 논문인 경우 외국의 학자를 더욱 많이 활용할 계획입니다. 상호심의 제도가 더욱 활발하게 운영될 수 있도록 회원 여러 분의 적극적인 협조를 요청합니다.

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