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Making Use of Oral History as a Method to Study Effective Measures to Eradicate Schistosomiasis Japonica:

Analyzing the Case of the Chikugo River Basin in Kyûshû, Japan

Mitsuko Hasegawa, Nagasaki University, Nagasaki City, Japan

ABSTRACT

According to the WHO, at least 258 million people required preventive treatment for schistosomiasis in 2014. In addition to the major strategy of mass drug administration, other measures are necessary. In the past, Japan had endemic areas of schistosomiasis but it was eradicated. The purpose of this study is to introduce new information about the successful case in Chikugo river basin in Kyûshû to the researchers and policy-makers who discuss the most suitable measures in the disease-endemic areas in developing countries. To collect historical evidence, literature was reviewed and to corroborate that with more focused oral history, interviews with local people were performed. Qualitative data was analyzed by creating a fishbone diagram. As a result, new information was acquired on such issues as education methods and active community participation. Furthermore, there was a correspondence with the key elements of the global strategic framework of Integrated Vector Management by the WHO. Some measures could be adapted to the conditions in the current disease-endemic areas.

KEYWORDS

Community Participation, Fishbone Diagram, Integrated Approach, Integrated Vector Management, Interview, Kurume City, Literature Review, Neglected Tropical Diseases, Schistosoma Japonicum, Tosu City

1. INTRODUCTION

The World Health Organization (WHO) emphasizes the importance of control of Neglected Tropical Diseases (NTDs). Among NTDs, schistosomiasis is reported to be found in at least 78 countries, most of which are developing countries and 258 million people in total required preventive treatment for schistosomiasis in 2014 (WHO 2016). In the past, Japan had endemic areas of schistosomiasis but it was eradicated 100 years after the discovery of the parasite, *Schistosoma japonicum.* Of the endemic areas in Japan, the Chikugo river basin in Saga and Fukuoka prefectures in Kyûshû saw measures where local people, their community and the local and national governments were all involved in eradicating the disease (Tsutsumi 2005). No patient has been reported since 1980 when two final patients were found (Tsutsumi 1986).

Schistosomiasis has an impact not only on individuals but also on society. For individuals, infection with *Schistosoma japonicum*, currently seen in China and Philippines, brings high fever and bloody mucous stool in the acute phase and liver cirrhosis and ascites in the chronic phase, which can lead to death. If the eggs get clogged in cerebral blood vessels, neurological symptoms such as epileptic

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seizures occur. Both *S. mekongi* distributed in Laos and Cambodia and *S. mansoni* in Africa and other areas cause symptoms similar to *S. japonicum*. The symptom of *Schistosoma haematobium* in Africa and the Middle East is hematuria and often includes bladder cancer as a complication (Uchida et al. 2005).

For society, as schistosomiasis passes into the chronic phase like other parasite infection, it hinders child development and also it decreases the work force when adults are infected (Aoki 2007). The current main stream of countermeasures for schistosomiasis is the large-scale treatment called Preventive Chemotherapy (WHO 2016). Oral administration drugs are distributed in a means of Mass Drug Administration (MDA), which works also as a prevention to transmission (Ichimori 2013). However, other preventive measures are also necessary as those who recover frequently get infected again (Ohmae et al. 2004, Nakamura 2007).

Accordingly, if possible introducing measures in parallel with MDA in the current endemic areas in developing countries can be presented, using the successful case of the Chikugo river basin as a model, future control measures of schistosomiasis could be more effective. However, it is difficult to adapt Japanese measures to developing countries where environmental and financial situations differ. Particularly, the core of the control methods in the Chikugo river basin was eradication of the intermediate host snail, *Oncomelania nosophorai* by mostly cementing riverside areas and ditches, usage of molluscicides, and environmental modifications, which involved huge cost. This method is difficult in developing countries where funds and resource are not adequately ensured. Furthermore, Matsuda and Kirinoki (2005) write that the effect of usage of molluscicides and their influence on the environment need to be carefully considered in the endemic areas of *Schistosoma mekongi* as the intermediate snail host lives in large rivers which local people also use in their daily lives. In addition, it is hard to avoid thinking of the fact that it is realistically unfeasible to eradicate the intermediate snail host in the vast basin. In other words, it is estimated to be extremely difficult to implement measures for eradication of the intermediate host taken in the Chikugo river basin from both financial and environmental aspects.

Considering these, control measures in the Chikugo river basin were closely researched to find applicable methods. Consequently, knowledge and awareness-raising activities for prevention (Saga 1991) and active community participation in the control measures (Tosu City 2009) were confirmed.

Regarding the knowledge of the disease among local people in currently developing countries, Nakamura (2007) performed a recognition survey in the endemic areas of *Schistosoma mekongi* in Lao on local school children, the highest risk group and the most active transmitters. As a result, more than 70% were found out to be unaware of schistosomiasis. He writes that effective health education needs to be expanded urgently. This result implies that knowledge of the disease is not widespread in endemic areas in developing countries.

Education and community participation in the Chikugo river basin are considered to have been effective for eradication of this disease but very little research has been done and insufficient records exist on the disease cognition level of the local people, how they acquired and transmitted knowledge of the disease, how they prevented infection and why they actively participated the control measures. Thus, oral history was applied to obtain accounts of undocumented control measures as seen through the eyes of local people.

Therefore, the purpose of this study is to verify the control measures in the Chikugo river basin by the qualitative study of literature review and oral history through interview surveys of local people, to discuss if these measures can be effective in affected areas of developing countries, that are often having to cope with financial constraints, and to introduce newly acquired information about this successful case to the researchers and policy-makers who are assessing the most suitable measures.

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