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No. 32, 2006

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This paper was presented at the 5th East-West Center International Graduate Student Conference, February 16-18, 2006 in Honolulu, Hawaii USA.

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Challenges and Solutions in Improving Tuberculosis Care Among Aboriginal People in Taiwan

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Abstract

Indigenous Taiwanese, the minority population in Taiwan, have one third the annual income of, and a lifespan ten years shorter than, other Taiwanese populations. Despite three decades of government support including free vaccinations, screening, and treatment, implementation of Directly Observed Therapy and worker's compensation for patients during treatment, TB remains the ninth leading cause of death among indigenous Taiwanese with an incidence rate ten folds higher than other Taiwanese. While most efforts to improve TB control for indigenous Taiwanese continue to focus on medical services, this study aimed to discuss the cultural and socioeconomic challenges of implementing tuberculosis (TB) control plans within a minority Taiwanese population and several strategies to address these challenges. Several socio-economical impediments to TB care and their consequences were discussed in this paper, including inconvenience of transportation, financial difficulties, barriers in understanding health care information and alcohol dependence. In addition, faith-based organizations, such as churches, have played an important role in educating Taiwan aborigines. This study suggested two strategies to overcome observed socioeconomic obstacles: enhancing collaboration with faith-based organizations within local aboriginal communities and implementing day care and after school care as a supplementary measure to facilitate hospitalization care among severe TB aborigines. In conclusion, unique social and economic factors should be considered in order to create TB control programs sensitive to aboriginal needs.

Background

Aborigine is the minority population in Taiwan. Its population was estimated as 453,233, counting for 2% of total population in Taiwan. Their average annual income was 132,000 NT dollar (around 4,200 dollars), which was only one third of other Taiwanese (1). In addition, the average life span in aborigines (female: 69 years, male: 63 years) was more than 10 years shorter than that in Taiwan in 2001(2). With the improvement of sanitary situation, the disease burden in Taiwan has changed from infectious diseases to chronic disease in the past few decades. However, TB continues to be the ninth cause of death among aborigines (2).

Several measures have been implemented in Taiwan in order to improve TB care to aborigines in last three decades. These measures include free vaccination for all children, free X-ray examination in many remote aboriginal villages for early TB detection, free treatment, and free hospitalization service without any prerequisite of health insurance (3, 4, 13, 14). Since 1995, aborigines could also obtain additional reimbursement for the loss of working income in the first three months of inpatient treatment (5). In addition, complying with the World Health Organization's (WHO) suggestions, Taiwan also has implemented the Direct Observed Therapeutics (DOTs) for aborigines with incident TB since 1997(3, 4).

Although several free measures have been implemented in the past decade to control TB in Taiwan, epidemiological data revealed these control plans are less effective among aborigines than among other Taiwan people. A thorough screening plan among aborigines showed that the TB incidence rate was 6.3 cases per 1000 person-years in 2001, which were ten folds higher than the average rate in Taiwan (4). Although the TB-specific death rates within aborigines has decreased from 3.9 per 10,000 persons in 2000 to 3.4 per 10,000 persons in 2001, the mortality rate ratio compared aborigines to Taiwan people actually increased from 5.8 times in 2000 to 6.2 times in 2001(2). In addition, it has been observed that most aborigines still do not have basic understanding about TB, although many TB control plans have been implemented specifically in aboriginal villages for the past three decades (3).

Obviously, Taiwan needs more efforts to improve TB care among aborigines. In fact, Taiwan government did respond to this demand through an increase of budget for TB control to six

hundred million NT dollars in 2004, which is five-fold of that in 2003 (6). Although monetary support is a very important element in the success of any disease control, more thoughts should be given to understand reasons for lack of effectiveness in previous control plans. While most attention has been targeted at how to provide better medical service to aboriginal TB patients, like increasing the financial incentive to medical care providers in rural areas (3), I think it is important to examine the reasons for less efficiency of TB care from the unique aboriginal social and economical perspectives. I also proposed potential strategies to overcome these obstacles.

Reasons for less efficiency

An important contributor for less efficiency of TB control plans in aborigines is inadequacy of social support. Inadequacy of social support could be observed in several different dimensions and become obstacles in TB control plan implementation, including the inconvenience of transportation, financial difficulty, information barrier, and alcohol dependence. These obstacles were addressed in following paragraphs.

Inconvenient transportation and financial difficulty has forced aborigines to ignore the early symptoms of TB and has deterred them from seeking medical care (3, 7). The delay of care-seeking behavior has not only led to higher proportion of moderate and severe TB cases at diagnosis but also prolonged their infectious period in aboriginal communities (8).

Information barrier resulting from the culture difference made it difficult for aborigines to understand some important concepts in transmission and treatment of TB. According to a questionnaire survey, less than half of aboriginal participants understood that TB is an air-borne transmitted disease and more than half of responders believed TB could be prevented by avoiding the share of drinking cups or bowels (7). Some aborigines even thought TB as a heritable disease because they observed a cluster of TB cases among their families (9). While lack of understanding about TB led them to ignore the threat of TB transmission from the shared endemic communities, many affected elderly aboriginal TB patients actually were the primary source of infection to aboriginal children (9). It has been observed that the average prevalence rate of TB meningitis in aboriginal children was six times higher than that in

Taiwan children (10). In addition, although TB-affected aborigines were offered free treatment plus reimbursement for the loss of work during the hospitalization, the purpose of those support measures haven't been reached. According to a survey, only 23.8% of aboriginal people know this policy but 90% of aborigines presented their willingness to accept this welfare (11).

Information barrier could also be observed in the low perception of treatment completion among aborigines, particularly when the TB symptom was greatly improved after a few weeks treatment (12). According to the design of DOT plan, an observer would be assigned to each TB patient to assure the patient's adherence to TD treatment. In Taiwan, observers to aboriginal TB subjects were identified from the patients' family. However, a study revealed that 43.7% of study participants didn't know who was their observer and 40.8% of them didn't think they were reminded to take the daily dose (7). The observed situations suggested that not only the TB patients but also their families did not recognize the importance of completion of TB treatment.

Another crucial reason that leads to irregular and consequently less efficiency of TB treatment among aborigines is alcohol dependence. A study showed that 44.4% of aboriginal TB patients have ever discontinued the TB treatment longer than 14 days (7). It was reported that aboriginal average alcohol assumption was two times higher than that in Taiwan (2). While alcohol addition is a so serious problem among aborigines, the drinking behavior greatly contributes to the increased frequency of missing doses. Behind the drinking behavior, the increased hepatic metabolizing enzyme compromised the efficacy of anti-TB drugs at normal doses and the decreased liver function placed them at a higher risk of side effect from anti-TB treatment. Thus, alcohol addition is another important contributor to less efficient TB care.

Potential strategies for observed obstacles

A feasible way to reduce observed information barrier and to enhance the efficiency of TB care among aborigines is through the utilization of local faith-based organizations, such as churches and temples. Two crucial contributors to the information barrier is high turn over rate of local health staffs and the ignorance of public health education. High-turn over rate of

local staff makes it hard to establish strong trust between community residents and local health professionals. In contrast, at least 75% of aborigines accept Christianity or Catholicism as their religious belief (1) and have attended their community church regularly, the relationship between faith-based organizations and aboriginals are stronger and could be considered as a method to deliver health education information. Thus, if Taiwan can utilize the long-term mutual trust between aborigines and missionaries, we could expect an improvement in aboriginal knowledge about TB and also aboriginal acceptability to health advice about self-management on TB care. With an understanding of TB, aborigines have the chance to avoid infectious contact. In addition, the routine worship could also mediate a lot of important information to aborigines, including free screening service and governmental support in receiving TB care when they are affected.

Besides free treatment and daily reimbursement for TB-infected aborigines, strategies to combat aboriginal financial difficulty in seeking health care are some supplementary supports. As most aboriginal adults need to work outside their communities, aboriginal elders, particularly female elders, became the care providers to the young generation. If supplementary plans targeted at hosting grandchildren is not available, affected aborigines also cannot seek TB hospitalization care even they need more intensive care and the care is free. Thus, free school and free care after school for aboriginal children should be considered because it makes it possible for aboriginal children to stay with their working parents when aboriginal elders accept TB hospitalization care.

Conclusion

Taiwan has attempted to control TB for longer than 30 years and has offered many TB control measures in aborigines. Although the aboriginal TB-specific death rate was gradually decreasing, the increasing Standardized Mortality Rate ratio compared aborigines to the average rate in Taiwan demonstrated the less efficiency of TB care in this population. As Taiwan government has allocated more funding to support TB control, a thorough reflection about the less efficacy of previous control plans was very important. In this report, I discussed four crucial reasons resulting in the less efficiency: information barrier, financial difficulty, the inconvenience of transportation and alcohol dependence. Strategies to overcome the

obstacles were also discussed. A feasible way to reduce the information barrier is to seek collaboration with local missionaries in delivering important information about TB and its care. In order to eliminate most aboriginals' concern in accepting TB hospitalization care, supplementary measures to aboriginal children care should also be considered. In summary, TB control plans should consider unique socioeconomic factors in proposing an effective control plan. By considering these factors, we can expect that TB will not be a main cause of death among Taiwan aborigines.

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