

財団法人日中医学協会
2007年度共同研究等助成金－調査・共同研究－報告書

2008 年 3 月 14 日

財団法人 日 中 医 学 協 会 御中

貴財団より助成金を受領して行った研究テーマについて報告いたします。

添付資料： 研究報告書



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1. 助成金額： 1,000,000 円

2. 研究テーマ

新型インフルエンザに関する中国農村部住民の住環境と予防意識の調査

3. 成果の概要 (100字程度)

本研究は鳥インフルエンザの現実的な危険にさらされている中国の農村地域を山東省、またこれまで鳥インフルエンザが爆発された安徽省と内モンゴル自治区からアプローチした。住民の住環境と予防意識に関する現地調査を通して、日常生活における感染された家禽への暴露及び衛生教育の実施状況を評価した。

発表論文等

・ GAI R, XU L, TANG W, KUROIWA C. KAP of poultry handling and living environment of rural residents in China. 第23回日本国際保健医療学会・東日本地方会. 東京, 2008年3月.

・ 研究結果に基づいた論文が近いうちにPublic Health又はEmerging Infectious Diseasesに投稿する予定である。

4. 研究組織

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新型インフルエンザに関する中国農村部住民の住環境と予防意識の調査

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Abstract

In China, most human cases of avian influenza were rural residents and were reported with a contact or an intake of sick poultries, suggesting rural residents have relevant risks to be exposed to the fatal virus. In this study, we investigated the living environment in rural areas and rural residents' knowledge, attitude and practices regarding poultry handling and avian influenza in Shandong Province, Anhui Province and Inner Mongolia Autonomous Region, and thus provide evidence on the risks of exposure to sick poultries and on the effect of health education for rural residents.

Key words: China, rural resident, avian influenza, living environment, health education

Introduction

According to the situation assessment by WHO, all the prerequisites for the start of a human influenza pandemic have been met save one: the establishment of efficient human-to-human transmission (1). The possibility that the virus will mutate into a new form communicable among humans increases as the geographical range of the infection expands and the number of people both near the disease and who have contracted the disease increases. Since 2003, outbreaks of highly pathogenic avian influenza A (H5N1) virus with sporadic transmission from birds to human worldwide have raised a considerable concern of the potential pandemic. In China, like other Asian countries such as Indonesia, Thailand, and Cambodia, most reported patients and victims were rural residents and had an experience to contact to poultries, suggesting rural residents have relevant risks to be exposed to the fatal virus. Many studies confirmed H5N1 infection has been associated with exposure to infected poultries (2-5). On the other hands, until now, there was no systematic study to understood knowledge and practices of rural residents regarding poultry handling and the infection precaution, and the performance of local surveillance system and the effect of health education and interventions such as vaccination to poultries. All those kinds of information are urgently needed for the policymaker to prepare the potential pandemic. The objective of this study is to assess living environment in rural areas and rural residents' knowledge, attitude and practices regarding poultry handling and avian influenza.

Methods

This is a cross-sectional study during September 2007 to January 2008 in Shandong Province, Anhui Province, and Inner Mongolia Autonomous Region, thinking of a geographical diversity and feasibility. In the later two regions avian influenza and human infection cases ever occurred before. The target population was rural residents aged 18 and above. It was selected by multi-stage sampling. First, we randomly selected 1 district from the each region. 3 counties were selected from each district and then 1 village from each counties. In the selected 9 villages, we interviewed all residents, totally

1379 participants (Table 1), by using a semi-structured questionnaire designed to collect information on their demographic characteristics, living environment, practice of poultry handling, frequency of going to poultry market, attitude to the potential pandemic, knowledge on avian influenza and disease prevention. Besides, officers from primary healthcare settings and the local Health Agency were interviewed to understand policies and interventions including surveillance, vaccination to poultries and economic compensation during the outbreak.

Table 1 Demographic characteristic of participants

Demographic characteristic		n=1379 (%)
Age		47.3 (± 17.6)
Location	Shandong	399 (28.9)
	Anhui	491 (35.6)
	Inner Mongolia	489 (35.5)
Gender	Male	662 (48.0)
	Female	717 (52.0)
Marriage status	Single	180 (13.1)
	Married	1199 (86.9)
Education	Middle school and below	1258 (91.2)
	Above middle school	121 (8.8)
Occupation	Peasant	1027 (74.5)
	Others	352 (25.5)
	Less than 5000	224 (16.2)
Annual income of household (RMB)	5000~10000	486 (35.2)
	10000~15000	227 (16.5)
	15000~20000	187 (13.6)
	20000~25000	65 (4.7)
	More than 25000	190 (13.8)
Joint of community-based medical insurance	Yes	1322 (95.9)
	No	57 (4.1)
Poultry feeder	Yes	312 (22.6)
	No	1067 (77.4)

Results

1) Living environment

The living environment of those surveyed rural residents was summarized in Table 2. Half of participants have a contact to wild bird (often and occasionally see). Nearly 50% have a semi-closed or opened yard, which poultries can pass in and out. From the interview, we found there were participants bringing a dead wild bird to home and make it for food when they found it outside. 51.8% keep poultries in their households. Among them, some had a special fowl-house and others didn't. Instead, in those households, poultries were bred in common living room, an extra room or the toilet. We also observed that in most households even those with a special fowl-house, poultry dung can be often seen in the yard, living room, toilet, and kitchen. From the interview, there were 30 of total 714 participants reporting the death of poultries during the past two weeks. When their poultries died, most participants

took them into burring or burying while others took inappropriate handling measures such as throw-out or in-take. In terms of the sanitary condition, 57.5% of participants dumped wastes at near-by of the house or everywhere, rather than at an appointed place. 9.9% didn't have water supply in the household. As much as 86.3% still use a latrine, rather than a flashing toilet. 67.9% prepared raw poultries and cooked food at the same chopping broad. According to the self-report of those participants, the vaccination rate of poultries bred in their households was 100%. The average frequency of going to poultry market was 19 days / time.

Table 2 Living environment

Living environment		n=1379 (%)
Contact to wild bird	Often see	426 (30.9)
	Occasionally see	388 (28.1)
	Never see	565 (50.0)
Type of yard	Yard circled with wall	714 (51.8)
	Yard semi-closed	182 (13.2)
	Yard opened	450 (32.6)
	Others	33 (2.4)
Frequency of house cleaning	Every week	677 (49.1)
	Every month	289 (21.0)
	Half of year	248 (18.0)
	One year	162 (11.7)
Waste dumping to an appointed place	No cleaning	3 (0.2)
	Yes	586 (42.5)
	No	793 (57.5)
Water supply	Yes	1242 (90.1)
	No	137 (9.9)
Type of toilet	Flashing toilet	189 (13.7)
	Latrine	1190 (86.3)
Separated chopping broad	Yes	443 (32.1)
	No	936 (67.9)
Poultry keeping in household	Yes	714 (51.8)
	No	665 (48.2)

2) Knowledge on avian influenza and disease prevention

Regarding rural residents' knowledge on avian influenza and disease prevention, we designed 15 questions based on an education guideline for human infection prevention (6) and allotted 1 point for the correct answer. The range score was therefore from 0 to 15. In this study, the minimum, mean, maximum score was 0, 4.5, and 11, respectively. As showed in Table 3, we compared the mean of the scores among different groups by statistical tests on SPSS 13.0.

We found that the residents from Shandong Province had better understanding of knowledge related to avian influenza and disease prevention than other 2 regions, which can be attributed to the effect of health education activities, as we understood from the interview of the local officers. Moreover, those with lower level of education, peasant, and those with annual income lower than 5000 RMB (approximately 75000 Japanese Yen) tended to have worse scores. Among factors significantly associated

with participants' performance of the question answer were also separated chopping broad for food preparing, treatment of influenza, vaccination, interest of related information, eating habit, and attitude to the potential pandemic. The main source of related knowledge and information was TV and internet. Approximately half of participants showed relevant interest and concern towards the potential pandemic.

Table 3 Factors associated with residents' knowledge on avian influenza and disease prevention

Factors		Mean	<i>P</i>
Location ^a	Shandong Province	4.86 (4.60-5.12)	***
	Anhui Province	4.38 (4.17-4.58)	
	Inner Mongolia Autonomous Region	4.18 (3.98-4.38)	
Education ^b	Above middle school	5.68 (± 2.524)	***
	Middle school and below	4.33 (± 2.375)	
Occupation ^b	Peasant	4.24 (± 2.328)	***
	Others	5.06 (± 2.573)	
Annual income of household (RMB) ^a	Less than 5000	3.17 (2.90-3.44)	***
	5000~10000	4.38 (4.19-4.58)	
	10000~15000	4.81 (4.50-5.13)	
	15000~20000	4.74 (4.40-5.09)	
	20000~25000	4.08 (3.46-4.70)	
Separated chopping broad ^b	More than 25000	5.51 (5.14-5.88)	
	Yes	4.93 (± 2.37)	***
	No	4.22 (± 2.408)	
	See doctor	4.73 (4.56-4.91)	***
	Self-medicine	4.16 (3.97-4.35)	
Treatment of influenza ^a	No treatment	4.07 (3.47-4.67)	
	Others	1.44 (0.77-2.12)	
	Yes	8.00 (5.10-10.90)	**
Vaccination of immune globulin ^a	No	4.44 (4.31-4.56)	
	Don't remember	4.71 (1.85-7.58)	
	Very interest	5.54 (5.18-5.90)	***
Interest of related information ^a	Interest	4.94 (4.75-5.13)	
	Not interest	3.62 (3.44-3.79)	
	Not at all	3.15 (2.86-3.44)	***
	Reducing intake of poultries	4.79 (4.54-5.04)	
Change of eating habit ^a	Careful whether the poultries are boiled	4.78 (4.18-5.37)	
	Don't eat poultries	4.72 (4.55-4.89)	
	Never	4.50 (4.37-4.63)	**
	Occasionally	3.82 (3.17-4.48)	
Eating of raw poultry ^a	Often	2.10 (0.61-3.59)	
	Yes	4.72 (4.56-4.88)	***
	No	3.57 (3.31-3.84)	
Cleaning egg shell ^a	Depending on	4.54 (4.22-4.87)	

Attitude to the potential pandemic ^a	Already taking action	5.81	(5.43-6.19)	***
	Be aware but not taking action yet	4.76	(4.56-4.97)	
	Not aware or not necessary	3.90	(3.73-4.06)	

a: by One-way ANOVA test; b: by *t* test

*** $p < 0.001$, ** $p < 0.01$

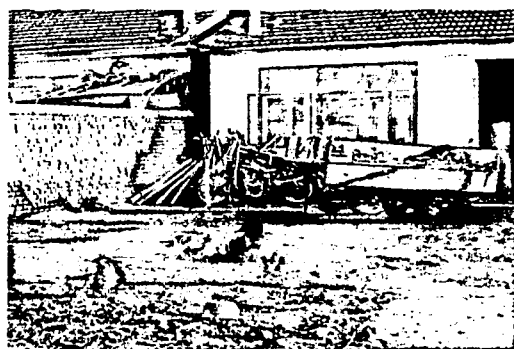
Discussion

This study identified the frequent and inevitable contact between rural residents and poultries in living environment of rural residents. The sanitary conditions, especially waste dumping, toilet, and water supply need to be improved. There still remain some unsafe and inappropriate practices on poultries handling such as food preparing and treatment of dead poultries. We found that level of rural residents' knowledge on avian influenza and disease prevention in general was relevantly low and regional difference, health behaviors and attitude aspects associated with it, suggesting health education for rural residents urgently need to be improved in future.

Figures



(1)



(2)

(1) Dead poultries threw-out.

(2) Inside and outside of the house and the yard were open to poultries.

References

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注：本研究は、2007年3月16日『日本国際医療保健学会東日本地方会』にて口演発表予定。

作成日：2008年3月14日