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THE IMPACT OF VETERINARY EXTENTION IN MINIMIZING HAZARDS OF AVIAN INFLUENZA

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A B S T R A C T

This research have been done by direct questionnaire with house wives and student who indirect contact with backyard poultry in Monofyia Governorate. Rapid avian influenza antigen detection kit test has the characteristics of two commercially available rapid antigen tests for highly pathogenic avian influenza. It reflected that the majority of housewives who buy poultry for house breeding from the Beachcomber was (66.2%), followed by farm (33.5%). This percentage is due to economic factors and majority of nannies do not have enough money to buy chickens from the farm, most of house wives breed bird away from living area (44.75%) and (55.25%) near to living area ,and (49.8%) mix between different species. Veterinary extension and community interventions have great effect in changing knowledge and practice toward avian influenza.

KEY WORDS: Avian Influenza, Communication, Extension, Poultry.

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1. INTRODUCTION

Highly Pathogenic Avian Influenza (HPAI) commonly known as Bird Flu is a viral infection caused by strains of influenza that occur normally among birds. It is highly contagious and when contracted, some domestic birds, including chickens, ducks and turkeys become sick and die. Bridges et al. [3] found that infected birds shed influenza virus in their saliva feces as nasal secretions, susceptible birds become infected when they have contact with contaminated secretions or excretions or with surfaces that are contaminated with secretions or excretions from infected birds. Domesticated birds may become infected with avian influenza virus through direct contact with infected waterfowl or other infected poultry or though contact with surfaces such as dirty cages or materials such as water or feed that have been contaminated with the virus.

In the1970s, the second pandemic, called "Asian flu" (H2N2) occurred 40 years later (1957-1958) and caused approximately 70, 000 deaths in the United States. It was firstly identified in China in February 1957 and reached the United States by June of that year. The third and most recent pandemic occurred a decade later, from 1968 to1969. It was known as the "Hong Kong flu" (H3N2), it was firstly detected in Hong Kong in early1968 and later reached the United States, where it took 34,000 lives. The origin of the first pandemic virus remains unknown; the later two pandemics were caused by viruses containing combinations of genes from both a human influenza virus and an avian influenza virus [5].

Fouchier et al. [6] confirmed that the main antigenic determinants of influenza A and B viruses are the haemagglutinin (H or HA) and the neuraminidase (N or NA) Trans membrane glycoprotein's that

capable of eliciting subtype-specific and immune responses which are fully protective within, but only partially protective across different subtypes. On the basis of the antigenicity of these glycoproteins, influenza A viruses currently cluster into sixteen H (H1–H16) and nine N (N1–N9) subtypes. These clusters are substantiated when phylogenetically analyzing the nucleotide and deduced amino acid sequences of the HA and NA genes; respectively [2].

The three types of human influenza virus recognized (types A, B and C) have been classified as members of the genus Orthomyxovirus. Their individual names demonstrate either their type, location or the year of their isolation 1, 2. Major outbreaks and severe disease are caused only by influenza A and B, whereas influenza C is associated with a common cold-like illness. The two major surface glycoprotein antigens (hem agglutinin-HA or H and neuraminidase NA or N) undergo gradual, progressive antigenic variation, referred as 'antigenic drift' and antigenic shift'3,4. This makes the viruses capable of Escaping immune reactions and causing epidemics [7]. The closely contact with dead or sick birds is the principle source of human infection with H_5N_1 virus most human cases had occurred in rural or per urban areas where many house hold keep small poultry flocks which often roam freely [1].

In sight of these facts, the current study was focused on direct questionnaire with house wives and student who indirect contact with backyard poultry in Monofyia governorate

2. MATERIAL AND METHODS

The present study; involved both descriptive and experimental research designs; was carried out on 2011 at Dept. of Zoonoses, Fac. Vet. Med., Benha University.

2.1. *Descriptive research design*

This research has been done by structured interviewing questionnaire program including housewives and students who were in direct contact with backyard poultry in Monofyia Governorate.

2.1.1. *Housewives*

The current study was based on across-sectional study design in which the data was collected from housewives (n=800) reared poultry in their houses, and live in direct contact with infected poultry by avian influenza or poultry-free from avian influenza. The main points of the questionnaire were social demographic characteristics, knowledge, information source, practice and attitude about and toward the avian influenza.

2.1.2. *Students and Children*

This part of the study was based on across-sectional study design in which the data was collected from 800 children or school students lived in direct contact with poultry reared in their houses or in house regest human case infected by avian influenza to evaluate knowledge, practice, and attitude. The main parts of the questionnaire were social demographic characteristics, knowledge, information source, practice and attitude about and toward the avian influenza.

2.2. *Experimentaly research design*

The current survey was conducted through the detection of avian influenza virus in poultry and human specimens in contact with cases having clinical sings of disease in Monofyia Governorate

2.2.1. *Sampling*

A total number of 294 poultry samples were taken before veterinary extension (n=147) and houses (n=147); each of which included chicken (n=100), duck (n=30) and geese (n=17); were examined for avian influenza. Samples for avian influenza virus infection in humans were collected by swabbing the nose or throat of the sick person during the first few days of

illness. Specimens were sent to the laboratory for diagnosing of avian influenza A virus by using molecular test [4].

2.3. *Rapid avian influenza antigen detection kit*

This test characterized two commercially available rapid antigen tests specified for highly pathogenic avian influenza [8]. School is a very important forum to reach children. Although, it will be difficult to expect that schools will provide special educational activities related to avian flu, simple things like announcements in the morning lines, hanging posters in the corridors, stickers in the bathrooms and distributing simple stories can keep the key messages be remembered [9]. Communicating strategy requires a clearly defined strategy with specific goals established in advance. The P-process is a framework designed to guide communication professionals as they develop strategic communication programs [10]. This step-by-step road map leads communication professionals from a loosely defined concept about changing behavior to a strategic and participatory program with a measurable impact on the intended audience The P-Process is used to develop communication programs addressing a wide range of topics.

3. RESULTS AND Discussion

3.1. *Questionnaire to determine awareness of the housewives with avian flu*

In table (1), when asked about the source of chicken or birds bred at home, results showed that there were two main exporters: traveling salesman or breeding farms and factories, but mostly from the Beachcomber (66.2%), followed by farm (33.5%). This percentage was due to economic factors, majority of nannies did not have enough money to buy chickens from the farm, most of housewives bred bird away from living area (44.75%) and (55.25%) near to living area,(49.8%) mix between different species, most of housewives have bad habit, leave duck on lake and opened area (80.6%) where there was a belief that it helps to tenderness growth after analysis of this situation and determine key message and make veterinary extension this percentage decreased to (65.25%). Mixing between different poultry species in the same places increased disease transmission especially from asymptomatic ducks which were considered a carrier and played an important role as a natural reservoir of disease, also give chance for virus mutation. Breeding poultry in opened place give chance to contact with other neighbor bird or migratory bird and this increase morbidity rate and increase chance for spread of avian influenza infection.

Vaccination was the most important methods in prevention and control spread of bird flu and so it must search for the response of housewives for vaccination and whether vaccination of all kinds of birds in the house and the answer before the veterinary extension Yes (36%) and NO (64%). So attention was paid to a point of vaccination and to discuss Jams in the seminars to find out why? It was observed that the majority believes that vaccine kill the bird, after veterinary extension work awareness toward vaccination importance increase and (70%) Yes and (30%) No. The practice of bird slaughtering, de-feathering and evisceration at home create opportunities for further and extensive exposure to the contaminated parts of poultry and increase the risk of infection. Precaution in Slaughtering before veterinary extension (25.8%) of house wives does precaution and (74.2%) of house wives don’t take care during slaughtering and evisceration.

As housewives should equipped with full protective gear and fully informed about the preventive measures to reduce the risk of infection. Yet, make stress in this point in seminars and use posters and film which explain how to slaughter, de-feathering

and evisceration in correct and protective way (43.5%) of house wives do precaution and (56.5%) of house wives still need more education . The number of human cases of bird flu had infected a large proportion of children where children always deal with poultry (88.75%) , the most common method of disposing slaughter waste product is throw in canal (62.6%) as shown in table (2), followed by bury (51.25%) and throw in the street (40%),dealing with bird has an importance significance in spreading of avian influenza ,many of housewives throw dead bird in street (33.37%)and low percentage of house wives tell veterinary doctor (19.20%) after veterinary extension (37.5%) of house wives in presence of infection or dead bird affected by avian influenza (37.50%) tell veterinary doctor and (12.5%) throw in canals. This result is not come in accordance with that of ALshima [1] who reported the most common method used by (37.6%) of house wives to dispose the slaughter wastes was streets followed by water canals (31.4%)and low percentage of house wives using healthy ways to dispose of the waste of bird burn (7.3%) and bury (7.4%).

3.2. *Questionnaire to determine awareness of students toward avian influenza*

The importance of children and school students in understanding speed and save the information, and application, here is the importance of awareness of children and school students against avian influenza. Children also good control factor for housewives in terms of monitoring change behavior towards bird flu and follow the right ways of raising poultry, which control and prevent spread of the disease. School is a very important forum to reach children, although, it will be difficult to expect that schools will administer special educational activities related to avian flu [9].

Table 1 Practice of housewives about birds and avian influenza

		Before veterinary extension		After veterinary extension	
		NO.	%	NO.	%
Where buy bird?	Peddler	532	66.2	532	66.2
	Hatchery or farms	268	33.5	268	33.5
Keep bird away from living area?	Yes	171	21.4	358	44.75
	No	629	78.6	432	55.25
Leave duck on lake?	Yes	645	80.6	522	65.25
	No	153	19.4	278	34.75
Separate between different species?	Yes	362	45.25	401	50.2
	No	438	45.75	399	49.8
Bird vaccination?	Yes	288	36	561	70
	No	512	64	239	30
Use disinfection?	Yes	194	24.25	430	53.75
	No	606	75.75	370	46.25
Precaution in house slaughtering?	Yes	207	25.8	348	43.5
	No	593	74.2	452	56.5
Children feed bird?	Yes	710	88.75	622	77.75
	No	90	11.25	178	22.25
Disposal of slaughter and breeding waste product?	Throw in the street	275	34.5	210	26.25
	Throw in canal	238	29.75	208	26
	Burn	101	12.65	202	25.25
	Bury	186	23.25	180	22.5

Result in table (2) has been shown that (93.73%) of students known about avian influenza because of many reason, the main importance of this reason that students see avian influenza in their house or in their neighbor house and 7.13% about incomplete answer, also (87.5%) give complete answer about clinical signs in poultry, (79.25%) give complete about clinical signs in human and (14.5%) in complete answer.

4. CONCLUSION & RECOMMENDATIONS

Veterinary Extension Seminars and television educational program has an effective route of communication to raise awareness toward avian influenza. The need for a tight system is an important step for monitoring and supervising the community activities. School program should be followed up from central and governorate level.

Table 2 General knowledge about avian influenza

Questions		*NO.*	*%*
Know about avian influenza?	Know	750	93.73
	Don't know	50	6.25
Clinical signs in poultry?	Complete answer	700	87.5
	Incomplete answer	57	7.13
	No answer	43	5.37
Clinical signs in human?	Complete answer	634	79.25
	Incomplete answer	116	14.5
	No answer	50	6.25
Mode of Transmission?	Know	643	80.37
	Don't know	157	19.63

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دور الارشاد البيطرى فى الحد من تأثير انفلونزا الطيور

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الملخص العربي

تشمل هذة الدراسة على دراسة مسحية قطعية اجريت فى محافظة المنوفية خلا الفترة من 2011 وحتى منتصف 2012 , تم اختيار هذة القرية لمناسبتها ظروف البحث ز تم تطبيق على نمزذج للبحث الوصفى واخر للبحث التجريبى على (800) رية منزل وعلى (800) طفل وطالب مدرسة من المخالطين للطيور المنزلية اجريت الدراسة على مرحلتين ما قبل عمل الارشاد البيطرى واستخدام وسائله المتعددة وما بعد اللارشاد البيطرى تم عمل استقصاء على ربات البيوت لوحظ ان هناك 66.2% من ربات المنزل تشترى الطيور من الباعة الجائلين وان هناك 33.5 من معامل التفريخ لوحظ حدوث تغير ايجابى فى سلوك ربات المنزل الذين تم عليهم البحث من حيث احتياطات الامان عند الذبح زادت نسبة من يطبق ويتبع احتياطات الامان الحيوى من 25.8% الى 43.5% وكذلك التعامل مع الطيور اثناء التربية وكيفية التخلص من النافق وبعمل الاختبار الحقلى السريع انخفض معدل الاصابة فى الطيور بعد عمل الارشاد البيطرى فى الدجاج من 5% الى 2 وفى البط من 10% الى 3.3% ومن ذلك نستنتج ان التثقيف الصحي والارشاد البيطرى من خلال الاتصال الاستراتيجيبربات المنزل والاطفال والمحتكين بالطيور يلعب دورا مهما من الناحيه الوبائيه في الحد من مخاطر التعرض للعدوى من خلال تحسين ممارسات أصحاب الطيور بالمنازل المصرية مما يؤدى إلى التقليل من انشار مرض انفلونزا الطيور بين الطيور والإنسان في مصر.

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