

Zoonoses and information of the public: the role of media, with special reference to Italy

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Summary

The significance of zoonoses varies depending on many socio-economic factors and on the specific situation that prevails in a specific area. The role of the media often determines the importance given to a disease. In resource-rich countries, a zoonosis may be perceived as being important due to inaccurate information that has been circulated by mass media on the risk of infection for animals and humans and on the possible use of the agent for terrorist actions. Images of sick or dead people and animals, drastic methods of control and others, can contribute to an overestimation of the significance of a disease. Information can be lacking or absent in regard to socio-economic factors that clarify occurrence and also on geographic distribution. Therefore, the sensitivity of people can be influenced rapidly and negative socio-economic consequences can occur. These zoonoses can be named 'media-oriented (emphasised) zoonoses'. On the contrary, some zoonoses are scarcely considered for several reasons, for instance: occurrence in poverty-stricken areas and populations, risks of infection for people not considered important enough to deserve medical care, little interest from the media, decision-makers and health services, lack of information and official reports. These zoonoses can be named 'neglected zoonoses'. Some examples of zoonoses included in the above categories are described.

Keywords

Information, Italy, Media, Public health, Veterinary public health, Zoonosis.

Zoonosi ed informazione: considerazioni sul ruolo dei mezzi di comunicazione di massa, con particolare riferimento all'Italia

Riassunto

L'importanza attribuita alle zoonosi varia in relazione a fattori socio-economici e a caratteristiche delle aree coinvolte. Spesso il ruolo dei mezzi di comunicazione è preponderante nel determinare questo peso. Nei paesi ricchi una zoonosi può essere percepita come importante, per la diffusione di informazioni inadeguate, da parte dei mass-media, sui rischi di infezione per gli animali e l'uomo e sull'ipotetico utilizzo degli agenti eziologici in azioni terroristiche. Immagini di animali e persone ammalati o morti, drastici metodi di controllo, e altro, possono contribuire ad una sovrastima dell'importanza di una malattia. Sono carenti o mancano del tutto informazioni sui fattori socio-economici che ne favoriscono presenza e distribuzione geografica. Di conseguenza il pubblico può essere influenzato, con negative ripercussioni socio-economiche. Queste malattie possono essere definite come "zoonosi mediatiche (enfaticizzate)". Al contrario, per diverse ragioni alcune zoonosi sono oggetto di scarsa considerazione: la loro presenza in aree e popolazioni povere; rischio di infezione limitato a soggetti ritenuti poco importanti per le cure mediche; scarso interesse da parte dei media, dei politici e dei servizi sanitari; carenza di informazioni e di dati ufficiali. Queste malattie possono essere definite "zoonosi neglette". Vengono

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trattate alcune zoonosi appartenenti alle due categorie, con le motivazioni per il loro inserimento.

Parole chiave

Comunicazione, Informazione, Italia, Sanità pubblica veterinaria, Zoonosi.

Introduction

It has been known for centuries that certain diseases affect both animals and people at the same time. The concept that animal diseases can be transmitted to humans was developed later. Virchow used the term 'zoonoses' for the first time in 1855 and described these as 'infections caused by contagious animal poison'. In the course of history, the term *zoonoses* has changed significantly. From the classical definition of the World Health Organization (WHO) in 1959: 'diseases and infections naturally transmitted between vertebrate animals and man' to the most recent proposal by Mantovani in 2001: 'any detriment to health and/or quality of human life deriving from relationships with (other) vertebrate or edible or toxic invertebrate animals' (13). The interpretation of the new concept is both enlightening and revolutionary in that zoonoses are now embracing all problems associated with the presence of animals and their products. This approach fits the 'health' concept perfectly, without meaning the mere absence of disease, but 'a state of complete physical, mental and social well-being'.

The importance attributed to the different zoonoses varies depending on the socio-economic factors and situations involved. The priority given to control activities may differ vastly between rich and poor countries. In resource-rich countries, the role of media is often determines the 'weight' given to a zoonosis. In fact a zoonosis may be perceived as being important and, in some cases terrifying, due to inaccurate information released on a massive scale by the media on the risk of infection for animals and humans and on the possible use of its agent for terrorist actions. For instance, the transmission of television images of sick or dead people and animals, drastic methods of control (e.g. extensive stamping-out of animals),

focusing on bloody images etc., can contribute to an overestimation of the significance and risk of a disease by the public. When information is lacking on the socio-economic factors that favours the occurrence of a disease and on geographic distribution, the sensitivity of people may be influenced rapidly and negative socio-economic (sometimes also political) consequences can occur. These zoonoses can be referred to as 'emphasized zoonoses'.

On the other hand, some zoonoses receive scarce consideration for several reasons, for instance: occurrence (generally endemic) in poor areas or in poverty-stricken populations, risks of infection for people not considered important enough to deserve medical care investment, little interest from the media, decision-makers and health services, an absence or lack of official reports. These zoonoses can be termed 'neglected zoonoses'.

Finally, there are some zoonoses that can be either emphasised or neglected depending on different viewpoints and on the type and objectives of information destined for the public. These diseases can be named 'borderline zoonoses'.

Some examples of the above categories of zoonoses are reported here, mainly with reference to the situation in Italy.

Media oriented (emphasised) zoonoses

Bovine spongiform encephalopathy

Bovine spongiform encephalopathy (BSE), commonly known as 'mad cow disease', is a fatal neurodegenerative prion disease of cattle which appeared in the United Kingdom during the mid-1980s. Its zoonotic nature was suspected in 1996 when the first ten human cases of a variant of Creutzfeldt-Jakob disease were linked to the cattle disease. Since 1986, 190 000 animal cases have been diagnosed; during the same period, 170 human cases (160 in the United Kingdom) have been reported.

In Italy, massive efforts were deployed to identify positive cows. Between January 2001

and December 2005, approximately 3.5 million animals were tested and 128 indigenous and four imported cases were identified (14). The total prevalence during the five years was 0.37 cases for 10 000 tests (18). The cost of each diagnostic test, including the cost of the kit but not including manpower etc., was €10.00, resulting in a total cost of €33 million. This is an enormous amount, considering that only one human case was suspected.

At the same time, a continuous 'media storm' (from newspapers, television, radio, public discussions, etc.) descended upon the people. The result was the unjustified crash of the beef market, with the resultant significant socio-economic losses.

Now that the number of bovine cases has dropped, with a clear decline from one positive case per 10 000 tests in 2001 to one for 100 000 tests in 2005 (18), but the big 'fortress', built to control the disease remains. Attention has moved to other transmissible spongiform encephalopathies of minor zoonotic impact (scrapie, bovine 'amyloidotic' spongiform encephalopathy [BASE] and chronic wasting disease of deer) (1, 3, 15, 16).

Avian influenza

Avian flu is an ancient disease of poultry described in 1878 by Perroncito as 'avian pest': the use of the term 'pest' is evocative of the severity of the disease. The viral aetiology was recognised at the beginning of the 20th century. In 1955, the agent was ascribed to influenza viruses type A. Since 1981, the term 'avian pest' is referred only to the severe disease caused by highly pathogen avian influenza (HPAI) viruses. Starting in 1997, human cases have referred to direct contact with infected animals. To date, 335 humans have become infected and 206 have died from H5N1 virus, mostly in South-East Asia.

In Italy, during 2006, H5N1 virus was isolated only in some wild birds (16 swans) and never in humans or in domestic poultry. The information released by the media, which was urgent and alarmist, produced the same damage as that of BSE, causing the dramatic crash in the poultry market. Many companies had to close and the suicide of a poultry

transporter was reported, due to economic pressure.

Tick-borne zoonoses

The recurrent emphasis by media on ticks and tick-borne diseases during the summer tends to overestimate the importance of Mediterranean spotted fever and Lyme disease. The latter has been recognised as the most frequent vector-borne disease in mild climates. The shocking data reported by media referred to suspect cases, but it should be noted that only 0.5% of these cases were confirmed. Instead, in Italy and all across the Mediterranean Basin, many cases of Mediterranean spotted fever are reported each year. For instance, in Sicily alone, 8.8 cases/100 000 inhabitants are reported yearly (4). Three or four fatal cases occur (mortality can reach 2.5%); this rate is considered normal by experts but it is unflinchingly emphasised by media: the dead people are named 'victims of the killer tick'.

Neglected zoonoses

Cystic echinococcosis

Echinococcus granulosus infection or cystic echinococcosis (CE) is spread worldwide and the Mediterranean region is considered to be a 'hyper-endemic' area. In Italy, sporadic, endemic and hyper-endemic areas have been identified. Different levels of prevalence in intermediate hosts have been observed from the north to the south, depending on the number of sheep raised; values range from <1% in northern regions to 75% in Sardinia. The principal cycle is the dog/sheep and the most prevalent strain of *E. granulosus* is the genotype G1 that has also been isolated in other intermediate hosts (goats, cattle, pigs and horses). Moreover, only a few isolates of G3 (the buffalo strain), G7 (the pig strain), G4 (the *E. equinus*, horse strain) and G5 (the *E. ortleppi*, bovine strain) have been recovered (5, 9).

From the public health point of view, CE plays an important social role as it ranks at the top of the list of parasitic zoonosis that prevail in the Mediterranean Basin (7). In Italy, a yearly average of 1 371 hospitalised cases (for a total

of 15 000 hospitalisation days) was estimated during the period 1999-2003 (6).

The socio-economic impact of CE is related to both human and livestock infections and to the costs of control programmes (2). In humans, CE may have various consequences, including the following:

- cost of diagnosis of infection
- medical and surgical fees
- hospitalisation expenses
- nursing and drugs
- loss of working days or 'production'
- mortality
- suffering
- social consequences of disability.

In livestock, the principal consequences are as follows:

- reduced yield
- affected quality of meat, milk and wool
- reduced birth rate and fecundity
- delayed performance and growth
- condemnation of organs, especially liver and lungs
- costs for destruction of infected viscera and dead animals.

Losses in sheep have been estimated to approximate 7-10% of milk yield, 5-20% of meat or total carcass weight and 10-40% of wool production.

The lack of attention devoted to CE creates a lack of official data from the national health system and does not provide a complete picture of the spread of the parasite and of the risk of infection in non-endemic areas which would enable prompt and effective control measures and interventions.

Brucellosis

Brucellosis is one of the most important zoonoses that prevails in the Mediterranean Basin. *Brucella melitensis* is mainly present in areas with traditional/family farming activities (especially in pastoral and nomadic communities); *B. abortus* occurs in most countries and also in areas of intensive animal husbandry. The inclusion of this disease in the category of neglected zoonoses is mainly due to the under-reporting of infection in humans. In addition, cases of occupational infection and

the fact that the disease typically affects rural or poor communities are most important.

Brucellosis has been virtually eradicated from northern Italy but is still present in the regions of the south. Official data indicate 4.2% positive sheep and goat flocks (prevalence of 2.2% in animals) and 1.4% positive bovine herds (prevalence of 0.4% in animals). Prevalence rates of $\leq 0.05\%$ are observed in northern Italy where many 'officially-free' areas are present. On the contrary, the situation is quite different in the southern regions, e.g. with peaks of prevalence in buffalo (2.5%) in the region of Campania, especially in the province of Caserta, where up to 34% of herds gave positive results (11). In Sicily, the situation can be considered dramatic given the reports of prevalence of 4.9% in sheep and goats and 1.5% in cattle. As a consequence, a vaccination campaign with the RB 51 strain was launched in both of these regions (11, 12). We must also consider that, according to WHO data, the true incidence of the disease is 10 to 15 times higher than official reports. Human cases reported in Italy in 2005 totalled 681 (incidence rate: 1.2/100 000 inhabitants); out of these, 401 (8/100 000) were reported in Sicily. In a period of four years, in the Sicilian town of Messina, 37 cases of spondylitis due to *Brucella* were recorded (A. Cascio, personal communication).

Occupational zoonoses

The fact that people working with animals or animal products may contract infections has been common knowledge for centuries, long before the introduction of the concept of 'zoonoses'. Only recently, at least in Italy, was the prevention of occupational risks taken into account by legislation (Legislative Decree No. 626/1994). By stressing the need to safeguard the health of workers, this decree also recognised (for the first time in Italy) the possibility of biological risks in the working environment. In this context, working activities that are included imply contacts with animals, their organs and products. Unfortunately the importance attributed by media to the animal-related infections in workers remains very limited. The focus of the

media is often on sensational events, like the explosion of a tank or work-related accident; two cases of leptospirosis in a delicatessen factory or five cases of brucellosis in a slaughterhouse (8, 10) are not items of news that are considered 'worthwhile' as they do not attract much attention. As a consequence, these diseases and other very important public health risks are neglected and the information on the real threat does not reach people.

'Borderline' zoonoses

Some diseases lie between emphasised and neglected ones, depending on different approaches. For instance, anthrax, a well known and historic zoonosis, still present in some areas ('anthrax fields') of Italy, may be considered a neglected zoonosis from an occupational point of view. However, there was a boost of interest from the media when *Bacillus anthracis* was presented as a bioterrorist agent, especially when the possibility of transmission by mail was imagined.

Lyme disease was emphasised excessively by the media until the performance of diagnostic tests had been improved and the case definition had been defined by Centers for Disease Control and Prevention in Atlanta.

Animal bites may be considered a 'zoonosis', according to the widened concept of the term suggested by Mantovani (13). In Italy in recent years, the problem of 'biting dogs' has been exaggerated by the media, even if reliable data on animal bites are absent (17). This emphasis created an exaggerated dislike for some breeds of dogs (and their owners) and a specific national law on 'dangerous dogs', without

drawing public opinion to the problem of vagrant dogs and to the factors that favour the increase of the problem in certain areas of the country.

Conclusions

Health information has important implications on the awareness of people and on priority setting for research, training and the definition of health policy. In the past, people received scant information on diseases. In the last century, in regard to zoonoses, the use of a cryptic language by specialists did not increase the awareness of the public. If we consider that health information and education are the main steps in zoonoses control, the role of the media in influencing public opinion is very important, especially because their power has grown enormously. Unfortunately, this influence is linked strictly to the social and cultural status of the population and it is even greater when accurate information and real data on diseases are scarce or lacking. Public administrators may often be influenced by the media or interfere themselves with the information released. As a consequence, some health problems may be neglected and others over-emphasised, irrespective of their real importance; and journalists' reports may even influence budgetary allocations for the health sector. This phenomenon has worldwide repercussions. Now that the impact of zoonotic diseases and food-borne infections and intoxication on the health and well-being of humans is so substantial, the dissemination of inadequate or accurate information sometimes has dramatic socio-economic consequences.

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