

EDITORIAL

CYSTIC ECHINOCOCCOSIS AS A PUBLIC HEALTH PROBLEM IN LATIN AMERICA AND NEW APPROACHES TO ITS CONTROL

EQUINOCOCCOSIS QUÍSTICA COMO UN PROBLEMA DE SALUD PÚBLICA EN AMÉRICA LATINA Y NUEVOS ENFOQUES PARA SU CONTROL

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Cystic echinococcosis is a zoonosis caused by a cestode, *Echinococcus granulosus*, of the Taeniidae family. The adult form of the tapeworm affects canids, particularly dogs and foxes, while the larva is harbored by sheep, cattle, goats and other mammals.

The disease is an important public health problem with significant economic impact in the southern part of South America, i.e., Argentina, Chile, Uruguay, Brazil (Rio Grande do Sul), Peru and Bolivia. It is mainly associated with sheep production systems (Larrieu *et al.*, 2004; Craig & Larrieu, 2006).

Peru appears to have the highest infection rates in Latin America today, reporting up to 11 cases per 100,000 inhabitants. However, some endemic regions like Pasco, Junin or Huancavelica, may detect up to 34 cases per 100,000 inhabitants (Pérez, 2007).

Among the multiple issues that affect the parasite's transmission and help perpetuate its endemicity, there are biological, demographic, environmental and cultural risk factors, which are worsened by husbandry systems that are highly favorable for the disease.

Echinococcosis bears an important impact on public health, mainly because it has a chronic course progression that may lead to various degrees of handicap, and even death. Moreover, it has a negative impact on economy, since it causes losses because of the offal seized, it reduces the production of beef, milk and wool, and impairs livestock fecundity (Togerson, 2001).

The populations primarily affected are rural workers and their families, people that live in small villages or impoverished town belts, migrants from rural areas that often settle in extremely poor neighborhoods, with high rates of unmet basic needs and severe social fragility. These groups usually keep the habit of feeding their dogs with offal from home-slaughtered animals, perpetuating the parasite's biological cycle. The lack of drinking water and utilities, together with a low educational level and poor sanitary conditions increase the risk of transmission of these diseases.

Since the mid twentieth century, the Southern Cone countries have implemented a range of intervention programs to address this issue. Many of them persist to date and are operating regularly; others have been applied intermittently, while others have been totally discontinued. Examples of the latter were the pilot programs developed in Peru between 1975 – 1984 at the SAIS Tupac Amaru and Pachacutec Ltda (Ministerio de Salud, 1989).

The current status of the Latin American control programs, after 30 years of operation, indicates that those designs do not yield the results expected, clearly suggesting they warrant reengineering (Guarnera, 2006). New designs should contemplate complementary action lines, adapting strategies to local situations and considering approaches tailored to specific populations.

Uruguay's control program is a clear example; after analyzing the results obtained with the earlier programs, we are skeptical about the efficacy of targeted dog dosing with praziquantel in rural areas

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as the only tool to tackle the problem. In countries like Uruguay, implementation of that strategy leaves out broad sectors for various reasons.

We cite just two reasons to illustrate that : economic and geographical. When dog owners have to pay for the deparasitation service, the people or communities that cannot afford it will obviously not comply. The other cause of failure is the poor accessibility in vast areas of the American continent due to geographical hurdles.

Furthermore, in spite of the unquestionable value of mathematical models (Roberts *et al.*, 1986), their application in real life has often failed to provide the results expected , particularly in a complex health/disease process involves many biological, ecological, social and economic factors.

The control program currently implemented in Uruguay is based on a “risk-focused approach”. Surveys conducted in the framework of such programs in small villages and extremely poor urban areas, where no targeted praziquantel had been administered, or where anti-helminthic dosing had been sporadic or irregular, coproantigen tests were positive for *E. granulosus* in 4 % of the dogs, and as high as 7 % in the case of dogs labeled as “offal eaters”. Those groups represent true sources of infection (nodes) (Comisión Nacional Honoraria de Zoonosis, unpublished data).

These values are consistent with those found in rural areas where targeted anti-helminthic dosing of dogs is conducted.

The new strategy tries to address those issues by reinforcing several lines of action simultaneously and synergistically:

- Epidemiological re-definition, reviewing, redesigning and increasing coverage of administration of praziquantel to dogs, adapting to each area’s epidemiological status, especially targeting the sources of infection as a priority.
- Detection of individuals with asymptomatic liver hydatid cysts through ultrasound screening (Perdomo *et al.*, 1990). The use of serology initially in countries with high infection rates is not to be excluded; that issue should be decided based on the specific countrys characteristics,

applying a comprehensive vision of health .

- Development and/or promotion of programs for the responsible possession of dogs; one of the key components must be controlling the size of dog populations through surgical sterilization; there is evidence showing that the technique is time sustainable and widely accepted by the population.
- Emphasizing the educational component, prioritizing the direct interventions on the field, while promoting the tasks required for an early detection of hydatid cysts. However, the relevance of other strategies, such as curricular education should not be disregarded.
- Commitment of stakeholders at all stages of implementation of the program.

Finally, cooperation among the countries in the region should be seen as a key instrument to improve institutional capacities in the pursuit of common development goals.

In Resolution 7, the XII Inter-American Ministerial Meeting on Health and Agriculture (RIMS XII) held in 2001 highlights cystic echinococcosis as a significant Public Health problem, urging the countries to formulate plans of action and strategies aimed at eliminating the disease in the Southern Cone, the Andean Area and other sub-regions of the Americas.

In this context 2007 Peru and Uruguay launched a Technical Cooperation Project for the Prevention and Control of Cystic Echinococcosis in Peru. The project was developed in the framework of the strategy and vision of support to the initiatives for the control of this zoonosis in the South American countries, as declared by the country members of the Southern Cone Sub Regional Project for the Control and Surveillance of Hydatidosis, with the technical cooperation of the Pan American Health Organization/ World Health Organization (PAHO/WHO).

This cooperation project opens a very important pathway for the exchange of experiences and technology “*made in*” Latin America; it intends to be comprehensive, more efficient and effective than past programs, and inexpensive, allowing for the two countries’ simultaneous and synergic development. An example of such cooperation is the exchange agreed in relation with the diagnosis

of dog echinococcosis between Uruguayan and Peruvian institutions.

Achieving sustainability of the programs in the region is paramount. In that respect, mutual cooperation plays a potential key role, contributing with a deep, interdisciplinary approach, encompassing the social and economic issues that have a strong impact on the epidemiology of diseases, all within a comprehensive context of zoonosis control.

There is no doubt that these instances are of utmost importance for improving communities' health, preventing diseases and improving their quality of life, typically that of the individuals in greatest social and economic need. Equally important, this initiative should also be regarded as a very valuable chance to establish links between countries that share common problems and objectives.

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