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*Editorial:*

## **COLOMBIA AS A MEGADIVERSE COUNTRY: CHALLENGES OF MIXED EPIDEMIOLOGICAL BEHAVIOR**

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The Colombian epidemiological profile has transcended to chronic diseases since life expectancy has increased substantially, especially in large cities. (1,2) Nevertheless, infectious diseases caused by pathogens, viruses, bacteria, fungi and parasites persist in some areas of the country.

According to the Ministry of Social Protection, the improvement of the living conditions of the population has allowed for great achievements in terms of health, resulting in the increase of life expectancy and the decrease of mortality caused by communicable diseases. (3) Many of these diseases are recognized by the World Health Organization (WHO) or by the Pan American Health Organization (PAHO) as “neglected diseases”, because they occur in populations that suffer from poverty and marginality. (4)

Colombia is a megadiverse country, which means that there are many and varied species of flora and fauna that, on the one hand, provide a suitable scenario for research on new molecules with therapeutic effects and, on the other, are involved in the cycles of the pathogens or produce diseases. Several of these diseases are “neglected”, which is evident in scarce or nonexistent research, as well as in the poor development on the issue in related academic programs. Some of these diseases include poisoning by toxins from animals such as jellyfish (known in Colombia as “aguamala”), ophidic accidents or poisoning by other animals, and pathologies originated by the contact with larvae of *Lepidoptera* of some genera such as *Loxocles* or *Tunga penetrans*, etiological agent of tungiasis, which may lead to mutilation of some parts of the body, among others.

This issue of the Case Reports Journal includes reports of diseases caused by helminths and of neurocysticercosis, which is caused by

the larval stage of *Taenia solium*. These diseases are considered as neglected by the WHO and the PAHO. (4)

Parasitic diseases etiologically originated by helminths are still prevalent in many regions of the country. All these infections are preventable, if patients comply with some recommendations, and through community support, good epidemiological surveillance and implementation of intervention measures that go from the improvement of the living conditions of the population, which requires improving existing disparity conditions, until access to the health care system.

Neurocysticercosis is well known for its biological cycle and the entity involved in its development; in other words, knowledge about the tools to control or eliminate it is adequate, as in the case of developed countries. Thus, the question is: what should be done in Colombia to achieve its control or elimination? To this end, it is necessary to extrapolate the existing knowledge to the domestic reality in order to encourage surveillance by the corresponding institutions interested in the parasite's biological cycle, that is, not only the health sector but also the agriculture sector and all those that may be involved. The role that the education sector may play in this regard is also relevant. As exposed by several authors, this transdisciplinary and comprehensive work should be done by territorial entities and the population, while the management of these diseases should involve the community itself as established by the WHO. (5)

On the other hand, the prevalence of some parasitisms may increase as the number of pets found in cities increases; this is the case of toxocariasis, whose larva penetrates the human body as an accidental host since this parasite is acquired by soil contaminated with dog feces.

According to a study conducted in the Faculty of Veterinary Medicine and Zootechnics of the Universidad Nacional de Colombia (6), larvae eggs of *Toxocara spp* and *Ancylostoma spp* were found in parks of the Suba locality in Bogotá D.C., which can produce visceral larva migrans and cutaneous larva migrans syndromes. This implies that adequate conditions for the development of larvae are found in many cities and, therefore, there is a risk of infection with these parasites. The Ministry of Health of Bogotá addressed this issue when it defined the concept of environmental health (7) and some of its activities highlight the protection against diseases transmitted by animals.

This convergence has a very special meaning from a public health perspective since, first, zoonotic diseases are still a major issue in our context—not only in rural areas with low technification of food production, both animal and vegetable—, which are controllable with measures involving different entities and, second, the fact of being a megadiverse country also generates risks of transmission zoonotic diseases or of those originated by animal hosts, as in the case of American trypanosomiasis or accidents caused by poisonous animals, which are frequent in Colombia.

The current situation of the country requires following the initiatives established by other countries to address their own pathologies labeled as “neglected diseases”, for which more human and financial resources are needed to facilitate research and management. Within the lines of research supported by Colombian funding agencies, research institutes and the academia, with a transdisciplinary and collaborative approach, there should be a special line that addresses these issues. This approach should consider the beneficial use of Colombian biodiversity to produce new therapeutic molecules or to strengthen the most

adequate measures for disease control, and also ensure a place for learning about these diseases in the academic programs of human and animal health care students. In conclusion, it is necessary to address the epidemiological and biological reality in a transdisciplinary way.

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