

## Is the current epidemic of Ebola virus a real risk to Brazil?

DOI: 10.5935/1415-2762.20140057

*[...] we only know well what we do not understand [...] only gradually the dark is clear [...]* (Guimarães Rosa).

Emerging and reemerging diseases are a big challenge to human well-being and endanger all humankind, regardless their degree of sociopolitical and economical evolution.

Emerging diseases are new, with significant anthropological, ethical, biological and medical impact. Due to its severity, there is a risk of sequelae, death and social repercussions (prevalence, environmental degradation), as observed with the acquired immunodeficiency syndrome, hemorrhagic fever, pandemic H1N1 (2009), multidrug resistant tuberculosis, chikungunya fever, Ebola hemorrhagic fever, among others. Reemerging diseases are those that return after long period of decline, with similar or stronger impact than previously, as it occurs with cholera and dengue.

Since the beginning to the present day in human history, illness is characterized by favoring factors, in which moments with specific features are observed, such as: a) age of pestilence and famine, in which epidemics, high mortality, short life expectancy are prominent; b) age of decline of epidemic phase: in which decrease of mortality and increase of life expectancy occurred; c) age of degenerative and man-made diseases: in which infections were less important and the degenerative diseases started to prevail, with low mortality and increased life expectancy; d) age of decline of degenerative diseases: current stage observed in developed countries. At the end of the 20<sup>th</sup> century emerging diseases appeared along with reemerging diseases, bringing attention to the movement of agents and vehicles of diseases and the risks to the entire human population, influenced by globalization and precarious survival conditions of all nations. Nowadays, it is observed even in developed countries the contraposition of characteristics from diverse age phases, in which degenerative diseases coexist with infections diseases, epidemics and endemics.

Development and dissemination of diseases result from: a) ecological changes; b) demography and human behavior; c) international trade and travel; d) industry and technology; e) adaptation and changes of agents and vectors; f) collapse of public health measures; g) economic model; h) processed foods; i) health education; j) variability and vectors' behavior. The combination of these factors is what determines the risks of diseases in a world in which migration and interrelationship barriers among countries and people are becoming smaller.

Currently, we are living the emergence of a new risk: the Ebola virus (EV) epidemic. Is there risk for Brazilians?

In 1995 in Congo, 250 people died (81% lethality) due to fever with mucocutaneous hemorrhage in locations situated along the Ebola riverbanks. The clinical findings were similar to those found in 1976, in Sudan and Zaire, when the death of 151 and 280 people, with a mortality rate of 53 and 88% respectively was notified. In 1979 and 1994, in Congo and Gabon, new epidemics similar to those in Sudan and Zaire were also reported, with mortality of 65 and 60%, respectively. In 1995, the etiologic agent of this hemorrhagic fever was identified as virus *Filoviridae*, which was named Ebola (EV). In 1996 and 1997 in Gabon, and be-

tween 2000 and 2004 in Uganda, Congo, Gabon and Sudan, the Ebola Hemorrhagic Fever (EHF) was responsible for the death of 57 and 74%, and of 53 and 89%, respectively. An EHF new epidemic emerged between 2007 and 2009 in Sudan, Congo and Uganda with a mortality rate of 25 and 83% respectively; and in 2012, in Uganda and Congo, with mortality between 25 and 83%, and 25 and 71% respectively. It was recognized in 2014 the largest severity of the epidemic ever recorded for EV, in Guinea, Liberia, Sierra Leone and Nigeria; countries with low Human Development Index (HDI) and that recently faced civil wars. It was counted more than 1,528 cases of EHF and the numbers keep increasing, with more than 950 deaths and 50% lethality. In the last weeks, the World Health Organization declared the EV outbreak in West Africa as a global public health emergency, with need for international action coordinated to stop and rewind its spread.

Since its description, the EHF is shown with resistance sufficiently able of remaining under special situations and possible worldwide spread. Currently is the largest EHF epidemic and among its associated factors, there are: a) cultural habits of contact with sick people and contaminated corpses; b) faith healing practices that use body fluids of sick patients; c) health care professionals with insufficient training or who do not have or do not use personal protective equipment; d) low human development index; e) recent past of civil wars; f) disorganized health systems.

The most exposed populations are health care professionals, family members and surrounding people of EV carriers. EHF consists a global concern due to the resistant conditions of the epidemic and the precarious life of more than two-thirds of the human population on the planet.

In Brazil and the rest of America, there were not reports of native cases in humans, but in the United States, monkeys infected by EV were found.

There are several types of the EV, such as: Ebola-Zaire, Ebola-Sudan, Tai forest (Ivory Coast); Bundibugyo and the Reston virus, which have as carriers, respectively, humans and higher primates.

The EV is transmitted from direct contact with blood and other body fluids of patients; objects contaminated with infected body fluids and infected animals. The natural reservoir of the EV is still unknown, however, in 2005 in Gabon, fruit bats were pointed as the most likely reservoir. Primates and antelopes could also be reservoirs.

The EV has high transmissibility and pathogenicity, and countries in the current epidemic present cultural factors that hinder appropriate prevention measures, such as: being close to patients; touch corpses at funerals; practice rituals with healers manipulating blood and secretions; transport corpses without the necessary care; resist to isolation of sick people.

The EHF has high lethality rates of 50 to 90%, with an incubation period between two and 21 days after exposure to the Ebola virus, and mean between 8 to 10 days. People infected with EV must remain for 30 days under quarantine regime (isolation). There may be spontaneous healing after the onset of the disease. However, it is observed that patients who died due to EHF did not develop effective immune response until the moment of his/her death. Its clinical manifestation is characterized as: febrile syndrome, severe headache, myalgia and arthralgia, asthenia, which evolves in few days to diarrhea, vomiting, epigastric pain, appetite loss, and in some cases, hemorrhage.

The diagnosis is clinical and laboratorial, and must be distinguished from: malaria, typhoid fever, shigellosis, leptospirosis, yellow fever, dengue, Lassa fever, chikungunya fever, Rocky Mountain Spotted fever, hemorrhagic fever caused by hantavirus.

The treatment for EHF consists in basic and advanced life support, without approved specific medication and in self-limited course. A few weeks ago two patients survived after being treated with monoclonal antibodies created in modified tobacco leaves.

It is reduced the possibility of an EV epidemic in Brazil, as well as a pandemic, considering the risk and control factors described. These factors depend on basic measures, which involve specially the virus transmission by contact with patients and their body secretions. These measures are being implemented in places where there is an epidemic and intended to be used to in other countries not affected by the current epidemic. These measures are possible through actions planned by health authorities, training of professionals involved and increase of knowledge of everyone about the disease. Health surveillance is necessary to prevent the spread of EV, but we cannot forget dengue and cholera. Nowadays, the easy way of traveling around the world, the exchange of merchandise and food, wars and underdevelopment may cause any disease to be disseminated in 36 hours to anywhere in the world. Therefore, we must be prepared to the risks that globalization imposes to the contemporary world.

What should be done globally consists of: a) fight poverty, unemployment, social inequality; b) prioritize health in all public and private policies; c) promote the liberating education, citizenship, technological and scientific competence; d) maintain the balance with nature through rational interventions about the environment, and understand the ability of agents and vectors, which determine the diseases that cause rupture of the well-being of people; e) transform the human being in subject, not object of the economy; f) establish solidarity and respect for life, as aim to human interaction and kindness; g) determine health as the greatest good that the human being has; h) promote self-knowledge, which is the key of the whole human complexity and salvation of humankind.

*[...] one must understand personal limit; respect and dignity with yourself and with nature; realize the person in its eyes [...]*

**Enio Roberto Pietra Pedroso**

Full Professor of the Department of  
Clinical Medicine of the College of Medicine, UFMG