Control of the national dengue emergency: urgent relationship between medicine and applied sciences

Control de la emergencia nacional por dengue: impostergable relación entre la medicina y las ciencias aplicadas

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Dear Publisher:

Dengue is an infectious disease transmitted mainly from the bite of the *Aedes aegypti* mosquito, although transmissions from other species such as *Aedes albopictus* have been reported, it is a viral infection that does not have a well-defined treatment and although many are studies have not yet been able to determine an effective vaccine to avoid high incidence rates, especially in tropical regions.[1]

When reviewing the articles published in Cuban magazines in the last quarter on the emergence of dengue, it is observed that a considerable number of them carry out clinical-epidemiological analyzes, which, although they are useful to create and establish the bases of clinical-epidemiological management of the disease at the national level; they often leave other topics of interest that could arise from the interrelationship of medical sciences with other branches of sciences unaddressed.

This comment does not intend to diminish the relevance of these studies, but it should be noted that most of them focus their objectives on describing and/or characterizing even when they have mathematical, physical and climatic variables that could lead to results of great impact on the prevention and control of dengue epidemics, taking into account that it is a vector-borne disease that is closely linked to different environmental parameters.

The medicine of the 21st century cannot be conceived if it is not interrelated with other sciences such as geography, physics and mathematics, since there are multiple disciplines that can be brought to the feet of medicine and epidemiology in particular: artificial intelligence, bioclimatology, applied mathematics with predictive analysis of diseases and geography with time-space analysis of disease distribution, etc.

The arrival of COVID-19 encouraged the application of multiple spheres of science, especially different models that, based on artificial intelligence, helped control the different outbreaks of said disease.

In this sense, artificial intelligence is used in the creation of computational models for the prediction and detection of positive cases, as well as in the management of medical resources and interpretation of images. Also, it allows personalized attention to patients.[2]

In the case of dengue, it is necessary in the current scenario to carry out research that allows the prediction and modeling of epidemics of this disease in such a way that a preventive approach can be taken and that health systems are better prepared to face the themselves. As examples of works that have focused on this topic we find: Use of automated learning and climatic variables as a tool for predicting the risk of dengue in Costa Rica, period 2007-2017[3] and Modeling and prediction of dengue cases in the short and long term in Villa Clara, Cuba using climatic variables and objective regressive regression,[1] in both studies the medical and epidemiological variables are merged with the climatic variables

collected in a given period of time in a given place and using prediction models they model future behavior of the illness.

It is still important to report the clinical aspects of the disease, but as long as they are novel events that contribute to science, because science must be innovative and controversial.

Bibliographic references

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