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# Viral diseases in Mexico

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Diseases of viral etiology have been present throughout man's history, however, these have been recapitulated by the current pandemic in which we live, which, by the way, we have no vision for the eradication of this or other epidemics that we have, not only locally, but globally.

Dengue had its first record in the year 1635 in America, however, its hemorrhagic presentation was until 1962, and since that date, it has not ceased to be a public health problem.

In our country, it appeared around 1941, when 6955 cases were recorded, marking a rate of 34.4 per 100,000 inhabitants, and has remained since with moderate incidence rates. The anti-vector campaign began in 1957 and fulfilled its mission in 1963 when it was declared eradicated by the Pan American Health Organization, reappearing in the late seventies on the southern border of our country. In the 1990s, serotype 3 was present, having a strong impact, again on the southern border, Gulf of Mexico, and in the north of the country, coinciding with the first epidemic of Hemorrhagic Dengue, being mostly linked with social and economic conditions. Today we find the four serotypes in the population, there is evidence of the circulation of two or more at the same time, a phenomenon related to the increase in cases and consequently the permanence of the epidemic. The latest reports of the Ministry of Health this year indicated on average a national incidence rate of 3.22, but in states such as Morelos reaches 23.11, which, although it is still low, is of consideration and is indicated as a current health problem (Fajardo, *et al.*, 2012).

The CHIKV virus was described in 1952, the infection vehicle being a vector's bite, and it is documented that it can be carried out transplacentally.

In May 2014, the first case of chikungunya in the Mexican Republic was confirmed, the highest peak after its appearance was the following year, and 12 588 cases were recorded in 2015. Currently, there are fewer cases recorded, only last year there were seven cases, and so far this year only four confirmations, as reported by the Epidemiological Surveillance System. However, specialists do not rule out a possible resurgence of the virus, so they consider it important to strengthen the control measures and thus avoid its spread (Torres-Longoria, *et al*, 2021).

The first case of Zika recorded in Mexico was in November 2015, by February 2016 the WHO (World Health Organization) had already declared the epidemic as a Public Health emergency. As of November 1 of this year,

there were a total of 12 989 confirmed cases by the Ministry of Health, Veracruz being the state with the most infected and so far in the year, 32 of the 33 confirmed cases are from the state of Morelos (Minassian, 2021).

Zika is transmitted by an arthropod that transmits the ZIKV virus, producing conjunctival and dermal affections, in some cases, neurological affections, specifically Guillain Barré syndrome, but also other serious complications, in the products of pregnant women cause microcephalies and other malformations of the central nervous system. There is also a record of several cases in which the virus is transmitted sexually, although the mechanisms are unknown today (Minassian, 2021).

It should be noted that, in the case of dengue, Zika, and Chikungunya, it is the same type of vector: the female mosquito of the genus *Aedes*, of *aegypti* and *albopictus* subspecies, belonging to the Culicidae family, which are reared in places where water can accumulate and in this case a greater concentration of bottles, cans, jars and even tires, place them as crucial elements for the proliferation of the mosquito and therefore of the viruses.

The Human Papillomavirus (HPV) has accompanied humanity for a long time, definitely talking about HPV is talking about cervical cancer, this relationship was established by Harald Zur Hausen, which earned him the Nobel Prize in 2009, and today more than 100 types are known, and at least 14 oncogenic types are recognized, although 16 and 18 are the causes of more than 70% of cervical cancers and precancerous lesions, as well as types 6 and 11 are the causes of 90% of genital warts. This virus is transmitted primarily sexually, it is said that 90% of people become infected shortly after starting their sexual life without most having an impact on the health of the host (Lizano-Soberón, 2009).

There is indeed no infallible treatment against HPV, however, we work on vaccines that help combat the transmission of the virus, it should be noted that in Mexico since 2012 this vaccine is included in the national immunization scheme. And it is known that between 1980 and 2016 the number of women over 15 years of age who died from neoplasia caused by the virus decreased, this decrease of 54% was achieved thanks to the result of a series of public policies focused on the detection and prevention of this type of cancer (Lizano-Soberón, 2009).

Some data attribute cervical cancer to HIV (human immunodeficiency virus) in 5% of cases. Speaking of the virus was first identified in 1983 by virologist Françoise Barré-Sinoussi and her colleague Luc Montagnier, who in 2008 won the Nobel Prize in Medicine for identifying the origin of the virus in apes. In Mexico, the first case of AIDS (Acquired Immunodeficiency Syndrome), a disease caused by the virus, was reported in 1983, and from that year until the second quarter of this year there were 322 987 cases diagnosed with HIV, 6 568 in this year alone according to CENSIDA (National Center for the Prevention and Control of HIV and AIDS), (Valdespino, 1995).

Unfortunately, the virus is always accompanied by stigma, discrimination, and phobia, despite the work around people and the pharmacological advancement, which allows carriers with access to antiretrovirals to become a chronic disease that can be lived with until old age. Despite the advances, there is still no vaccine, although there is already evidence in Phase III, which bodes well for a cure in a short time.

A little more than ten years ago, specifically in April 2009, Mexico declared itself a pandemic due to the outbreak of the AH1N1 influenza virus, months later the WHO officially declared the pandemic on June 11 of the same year. It is estimated that the flu left 20 million infected in the world and more than 9,000 people, specifically in our country 72 468 infected and 1,203 deaths, according to data from the WHO (Fernandez, 2009).

In Mexico there is an intense annual vaccination campaign, just for the 2021-2022 campaign, the government will apply 32 328 200 doses between November and February respectively, which will be available to the entire population but which have a focus on vulnerable groups, citizens from 6 months to 5 years and adults over 60 years, according to the Ministry of Health, this to combat the virus that afflicts the population, especially in winter.

We are currently experiencing a pandemic that has affected us not only at the health level but also in economic, education, environmental, scientific, etc. Let us recap, the coronavirus SARS-CoV-2, the cause of the COVID-19 disease, appeared in November 2019 in the city of Wuhan, China, and affects the whole world, the latest data obtained have reported us more than 250 million affected with almost 5 million deaths, in our country about 3 million 800 thousand infected and more than 290 thousand deaths caused by the coronavirus according to the WHO (Shamah-Levy, 2021).

The learning that the epidemics before this pandemic have left us is in question since it is enough to see the behavior of society itself in the face of the coronavirus since currently, a new variant threatens us, the delta plus, the result of ignoring the guidelines of our authorities in health matters. And it is also true that globalization forces us not to stop the activities already established, and that together with the greater number of kilometers of roads, therefore, a greater number of cars, greater number of flights, truck runs, etc., favor the rapid mobilization of population groups from one area to another, as well as the greater exchange of goods by air, land, and sea, among other agents, facilitate the rapid spread of these infectious agents.

However, globalization was not only a counterproductive variable, but also quite the opposite, instant communication, which is also an important part, allows the immediate exchange of all kinds of information, which was, is, and will be crucial for the very advancement of technology, new techniques for research, and thus work on new strategies for the development of vaccines and drugs, that play a primary role in the fight against a pathogen, in the latter case, COVID-19.

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