Pulmonol. 2020;26(2):114–115

PULMONOLOGY

www.journalpulmonology.org

BREAKING NEWS

And now for something completely different: from 2019-nCoV and COVID-19 to 2020-nMan

Infectious diseases have accompanied mankind since the beginning of humanity and have had a profound impact on the history and development of humanity and civilisation. This is natural if we are aware that microorganisms represent the majority of the biomass on planet Earth, and that there are more microorganisms, specifically bacteria, in the human body than there are cells. To be more precise, about 1012 human cells for every 1013 bacteria, as an adaptive advantage of the replication of bacteria that occurs every 20–40 min, as against tens of years in the human species.

Infectious diseases, in particular pandemics and local epidemics, have influenced the course of wars, all descendants, including those of rulers, and the fate of peoples and nations.[1] By way of example, we should remember the importance of malaria in the fall of the Roman Empire, the Black Death in the 14th century which killed nearly a third of the world's population, and the impact of the ''Spanish'' flu pandemic of 1918–19 in Portugal, which in a few months decimated 1% of the Portuguese population and reduced average life expectancy to 20 years and, more recently, smallpox, declared eradicated by the World Health Organization (WHO) in 1980 as a result of vaccination,[2] and with an estimated mortality in the 20th century of between 300 and 500 million people.[3]

In light of this impact, it is legitimate to consider infections one of the main modellers of mankind and of present and future generations, as well as generations of the descendants of survivors.

We have also been major challengers of infectious diseases in the 21st century. Most notably in 2009 and 2010, when the 2009 influenza pandemic caused by the A (H1N1) subtype strain occurred, which originated in Mexico, with a virulence rate of 5–10% of the world's population, and an estimated mortality of 300,000 people. In Portugal there were 124 deaths, with an average age of 47.6 years, corresponding to a crude death rate of 1.17 per 100,000 inhabitants.[4]

However, it is in the first decades of the 21st century when the number of outstanding cases corresponded entirely to Coronaviridae of the family Coronaviridae, from the Latin corona, given its crown shape under electronic microscope. These viruses belong to a large family of RNA viruses, with abundant expression in the animal kingdom, particularly bats, and also other mammals, birds and reptiles. The first outbreak of coronavirus disease was the result of a cross-species barrier jump, originating in bats, and probably the musk cat as a secondary host, which began on November 16, 2002 and was named SARS-CoV (Severe Acute Respiratory Syndrome - CoronaVirus) in Guangdong Province, of the People's Republic of China, and extended to 17 countries, including Canada, the United States of America (USA), Australia, Germany, France, Sweden, the United Kingdom and Spain. The WHO declared an end to the risk of new cases on 19 May 2004, with an estimated total of approximately 8096 cases and at least 774 deaths.[5]

A new outbreak occurred in 2012 in Saudi Arabia, subsequently named MERS-CoV Middle East Respiratory Syndrome-related CoronaVirus. This virus, also originating from bats, and using intermediate hosts, camels and dromedaries, had its greatest expression in the Middle East, and the risk of new cases is still not considered to be over. Up until June 2015, it is estimated to have affected approximately 2506 people, with 862 deaths, in about 26 countries, including the USA and several European Union countries.[6]

Finally, in December 2019 a new outbreak of coronavirus was detected in the city of Wuhan, Hubei Province, China, which was provisionally named 2019-nCoV (nCoV for new coronavirus). The first known fatal case was recorded on January 9, 2020, and on February 11, 2020, due to its similarity to the initial SARS-CoV the WHO named this new coronavirus SARS-CoV-2, and the disease, COVID-19 (COronaVIrus Disease-19).[7]

By 25 February 2020, the number of cases had exceeded 80,000 in 39 countries or special regions, with more than 2700 deaths.[8] Evidence of transmission chains in communities in other countries and continents outside China confirms the increased risk of a possible pandemic.

Through these three global outbreaks of coronavirus disease in the 21st century we have seen a marked improvement in diagnostic response, particularly in molecular

https://doi.org/10.1016/j.pulmoe.2020.02.010

biology and genome sequencing. Yet, unfortunately, this improvement in diagnosis has not translated equally into the development of targeted therapies and vaccines. Ideally, the development of vaccines against common segments of the coronavirus would bring greater scope in terms of preventing current and future outbreaks.

Finally, in an increasingly global world, these outbreaks greatly reinforce the perpetual and recurring challenge of infectious diseases in the history and lives of individuals and civilisations. If we cannot expect the behaviour of infectious agents to change, it is down to us to promote knowledge and expertise, individually and collectively. Only thus can we minimise the risks of exposure, ensure early detection and timely diagnosis, and adopt the most effective infection control, therapeutic and preventive measures. We must never lose the humility to learn from mistakes and bear in mind the fundamental role of social communication in safeguarding a transparent and coherent risk assessment and management strategy. In other words, we must learn how to evolve in the wake of these new Coronaviruses, the nCoVs, to make a sustained and responsible change in our behaviour and attitudes. New citizens, new mankind: 2020-nMan.

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