‘Corona’ versus ‘coronary’

The similarities and differences of CORONA virus and Coronary Artery Diseases are presented and discussed.

This may not be an unusual conversation but rather a common misunderstanding. For sure, the words corona and coronary sound similar, particularly for patients on the phone at the present time of the coronavirus outbreak.

There is no doubt that the meanings of these two words are different. However, in a way, the above-reported telephone conversation refers to two distinct epidemics which, apart from the name, share similarities and differences warranting consideration.

The meaning of the word epidemic

Epidemic comes from the Greek language ἑπιδημία. It means above (or on top of) people. In a medical context, an epidemic describes a sudden increase in the incidence and prevalence of a disease above its normal rate, affecting a large number of individuals and spreading worldwide or over a large area. Usually, but not exclusively, an epidemic refers to an infectious disease that affects, almost simultaneously, a given population with a sizeable distribution in time and space. Although epidemiologists consider epidemic outbreaks synonymous with epidemic, for the public, the latter has a more serious, often terrifying meaning, which is what is happening today for the coronavirus. The word epidemic also applies to non-communicable diseases, such as degenerative diseases, cancer, and cardiovascular diseases (CVD) which are responsible for the majority of deaths worldwide, much more than the COVID-19 outbreak, as shown in Table 1.

COVID-19 and cardiovascular diseases: similarities and differences

Both COVID-19 and CVD predominantly affect the elderly but can also occur in the young. Both are present worldwide. Both are the consequences of drastic cultural and social changes and ways of living. Both affect the whole society rather than a single individual but with a difference. COVID-19 is a communicable disease, and its outbreak requires immediate and drastic measures, such as a population lockdown along with all the related consequences including the economic crisis that will follow. This, of course, is immediately perceived by the whole society. The same is not true for CVD, which is perceived as a disease of a single person rather than a global problem although it is even a bigger global problem than COVID-19. Governments do not impose drastic measures to reduce the known causes of CVD. They simply suggest to patients how to prevent CVD. Paradoxically, measures to reduce risk factors for diabetes, obesity, and hypertension are less drastic than a lockdown and yet, would save significantly more lives!

The question is: why? Why are people more worried about COVID-19 than a CVD epidemic or other more deadly diseases? Mainly for three reasons: habits, knowledge, and care.

Table 1

| diseases                                      | No. of deaths |
|----------------------------------------------|---------------|
| COVID-19                                      | ≈700 000      |
| CVD                                           | ≈10 400 000   |
| Malignant neoplasms                          | ≈5 200 000    |
| Infectious and parasitic disease (other than COVID-19) | ≈3 200 000 |
| COPD                                         | ≈1 700 000    |
| Road injury                                   | ≈817 000      |
| Tuberculosis                                  | ≈754 000      |

COVID-19 data refer to the period from January to July 2020. The number of deaths from other diseases in the same period are calculated according to the latest Global Health Estimates by the World Health Organization. Sources: https://www.ecdc.europa.eu/en/covid-19-pandemic https://www.who.int/healthinfo/global_burden_disease/estimates/en/
Perception of COVID-19 and cardiovascular diseases: a matter of habits and knowledge

The (ancient) Egyptians had coronary artery disease and were aware of it! The Medical Community has had ample opportunities to become accustomed and to study CVD for centuries. Our knowledge on the pathophysiology of CVD is quite advanced. We know the causes and how to prevent and treat CVD. Cardiologists often celebrate their success in treating CVD that have contributed for at least 7 years, to the 10-year-increase in life expectancy. However, CVD have not been defeated but simply delayed, contributing to aging of the population, and CVD remain the first cause of death worldwide.

In one word, there is ample awareness of CVD. We are accustomed to their existence, we do accept them and, apart from some governmental impositions, such as the anti-smoking law, everyone is free to decide which lockdown to impose on oneself to control blood pressure, reduce weight, perform regular exercise, or go on a diet. In addition, contrary to COVID-19, CVD might have a genetic origin and people are resigned to an unfortunate heritage with little that can be done about it. Therefore, through the years, the community has learnt to accept the current epidemic of CVD. To be affected or to die from CVD is considered sad but expected and natural. Differently, we tend to believe that the spillover of a virus from animals to humans should not happen and when it does in a pandemic proportion, everybody is surprised and unprepared. This is the case of the COVID-19 outbreak.

Perception of COVID-19 and cardiovascular diseases: a matter of care

The Scientific Community is aware of CVD and is organized to deal with them. Networks of hub and spoke hospitals to treat myocardial infarction have been set up; guidelines for the best therapies are available as well as surgical and interventional methods to deal with CVD. The Cardiology Community has performed hundreds of trials to provide evidence-based solutions. The industry is interested in developing new—and profitable—tools and drugs for CVD. The opposite is true for the COVID-19 outbreak. Health systems across the world were
Two epidemics at the same time are too much: the collateral damage

Emphasis on COVID-19 has created concerns about contracting the infection during a hospital stay, ultimately causing a series of collateral damages. This is true for all diseases, but particularly so for CVD and more specifically, for acute coronary syndromes (ACS), a time-dependent pathology.

All over Europe and the USA, during the early days of the epidemic, fewer patients reached the hospitals for ACS and... ACS were not prevented by the coronavirus, despite the proposal that the lockdown had results in less stress and therefore, less ACS or infarcts. This is not true, actually, the opposite may be true: less exercise, fewer laboratory, or other tests and probably more weight gain is likely to increase rather than decrease ACS during a lockdown.

But, more than anything else, the anxiety generated by the unknown and the fear of acquiring SARS-COV-2 infections in the hospitals has prevented patients from seeking effective medical interventions, compromising CV care. The results are more sudden cardiac death, more complications of acute myocardial infarction (often experienced at home), more heart failure, and, eventually, more deaths. Therefore, actually, the COVID-19 outbreak has negatively affected CVD by shifting the attention of patients like Mr Brown from his coronary problems to those related to the new coronary virus. Sorry corona not coronary virus! This is where the confusion lies.

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