Asymptomatic Patients and Immune Subjects

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Contributor: Sheila Veronese

An asymptomatic patient is someone who contracts a disease but shows no symptoms. An immune subject is a person who is free from virus infection. Both of these categories of people experience the limitations of government imposed by a pandemic situation, with one important difference. Probably only the first subjects contribute, in spite of themselves, to the spread of the disease and to the contagion of the people most susceptible to the virus. This implies that their detection is essential to limit infections. Therefore, knowing the characteristics of these people and those immune to the virus can be extremely useful in mitigating the effects of the disease and/or defeating it.

natural immunity asymptomatic subjects sickle cell disease obesity population density age gender

The spread of a disease in a country can depend on the effectiveness of the measures put in place to contain it and on the characteristics of the health system of the country itself. In the case of COVID-19, a disease resulting from a new virus, the whole world reacted by taking drastic measures, such as repeated total lockdowns during peaks of contagion.

The analysis of the data on infections, hospitalizations, and deaths showed that the virus has had very different effects from country to country. Overall, an immediate attempt was made to identify and protect the people who could be at increased risk of contracting this disease. It was quickly realized that the most severe forms of COVID-19 affected people over the age of 60 and/or with health conditions, such as lung or heart disease, diabetes, or conditions affecting the immune system [1]. However, country-to-country differences emerged on the groups of people at greatest risk.

This is the case, for example, of people with diabetes, who were listed in second place in the top 10 groups of people at risk of developing severe and life-threatening forms of COVID-19 by the European Union's European Center for Disease Prevention and Control (ECDC) of the European Union [2], while they ranked eighth among people who could be most at risk of serious illness by the Centers for Disease Control and Prevention (CDC) of the United States of America [3].

It should be emphasized that the containment measures adopted by the different countries have been different. The peaks of contagion occurred at different times, resulting in non-coincident lockdown periods in adjacent countries. The same political choices of the moment of initiation of the individual lockdowns, of their duration, and of the number of people authorized to continue essential work activities could have influenced both the contagion and mortality rates. The health protocols implemented in the various hospitals could also have played a decisive role in this regard.

These considerations lead to the conclusion that people with a certain pathology could be more at risk in some countries than in others. However, there may be other pre-existing factors that may have made some people more or less susceptible to the disease than others, leading to the development of mild forms of infection. Furthermore, it should not be forgotten that, as with all viruses, even for SARS-CoV-2 there can be people who are immune.

Immune subjects have undergone all forms of containment, to no effect, but this can be considered an acceptable price given the gravity of the situation.

Patients who have developed mild forms of COVID-19, paucisymptomatic or asymptomatic, are instead those who have probably contributed, in spite of themselves, to the spread of the disease and to the contagion of the most susceptible people.

Perhaps early characterization of both of these two groups of subjects could have mitigated the effects of SARS-CoV-2 and could, however, still be useful in explaining its spread dynamics.

Taking all these considerations into account, we analyzed the contagion and mortality data from Italy, relating to the first wave of infections, in order to identify which people were less susceptible to the virus. The characteristics of these people were then also observed on a global scale to understand whether the data found for Italy were general or specific for this country.

References

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