Autoimmune Gene Disorder: Is it Expected?

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Introduction

Autoimmune diseases are gaining new dimensions day by day and our information about them is increasing. In addition, the role of the immune system in many diseases that were not even thought to have an autoimmune origin is becoming clearer. Various reasons can be mentioned in this respect. Modernization and change in lifestyle, foods, weather conditions, viruses, and infections all play a significant role in this increment of autoimmune diseases [1].

However, the issue is not only limited to the increase in the incidence and prevalence of these diseases. In contrast, we are also facing new forms of autoimmune diseases. A large group of autoimmune diseases following the infection of COVID-19, whose nature and course are still indefinite, are a good instance of this pattern change [2].

Nonetheless, in terms of the target point involvement by the immune system, it seems that we observe the same former patterns. It is accurate that the majority of organs are involved by the immune system; however, this involvement is restricted to organs and components other than genes because the genetic content of the cells is limited either in the nucleus or in the mitochondria, and the mentioned limitation protects genes. Therefore, the genes cannot be recognized as defective and attacked by the immune system and are quickly destroyed by DNases in the cytoplasm in case of release [3]. Of course, this does not mean that they do not have antibodies against genetic structures. If these genetic structures such as DNA are released from apoptotic cells, they can be exposed to the immune system. Anti-Double Stranded DNA (anti-dsDNA) antibody in lupus is a clear example in this respect [3]. However, the important point in this case, is that these antibodies did not arise due to the exposure of genetic elements inside the nucleus or mitochondria. Consequently, we do not have a category called autoimmune gene disorders. However, the following questions pop up: Is the existence of this category impossible? Isn't it conceivable that such a new category will also arise with the change and increase in the number of autoimmune diseases?

The genetic material inside the nucleus or mitochondria can be compared to the brain inside the skull. Many traumas do not damage the brain due to the supporting role of this strong skull. But if the injury is serious and caused by a strong or sharp object, it can cause brain tissue destruction. It seems that until now, the reaction of the immune system in autoimmune diseases has not been so strong and penetrating that it can pass through the defense walls of the nucleus and mitochondria. But will it always be the same? As mentioned, changes in lifestyle, modernization, and severe and new environmental changes are all causing changes in the patterns, severity, and prevalence of autoimmune diseases. Therefore, the development of such a new category of autoimmune diseases is not irrational. When a person fills the external and internal environment of his body with new elements that he has never had any familiarity within the course of evolution, then he should expect such intense and penetrating autoimmune responses from the body's immune system. In addition to the destruction of our genetic material, such diseases can also lead to the creation of new genes with new functions, and no one knows whether these functions are beneficial or not. Subsequently, the treatment of these diseases will also be very challenging as the mere suppression of the immune system cannot help improve the condition. Rather, we need broad gene therapy to restore defective genes as well. Apart from this, the outcome of these new genes should also be paid attention to. They make new proteins and the action of these proteins in the body can create another set of clinical manifestations. It seems that with the change in his biological nature, mankind has exposed himself to great dangers, getting rid of which is not possible easily. Consideration of changes such as environmental destruction is very imperative and serious if it is not too late.

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