Anatomy and Anatomy

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 The human body responds to the external and internal conditions differently. Considering the nature of the infection, the human body takes up defense measures against it. It also differs the way how this infection inside the human body spreads. Resultantly, the human body responds to the bacterial and viral infection differently (Brain, 2004). To the bacterial infection, the body reacts by increasing the blood flow while regulating and increasing the blood flow. In doing so, the body destroys the bacteria and sends in the cells from the immune system. In all this process, the antibodies produced by the immune system helps the bacteria which play an important role in cell destruction.

Compared to this, the human body reacts to viral infections by the use of natural killer cells. Natural killer cells destroy the virus-infected cells, without regard to antigens. They use chemicals to induce apoptosis in the infected cells. Since they are not antigen-based, they can act faster than most of the system (Brain, 2004). Some virus-infected cells also produce proteins called Interferons, which help to reduce virus replication in other cells. Antibodies are produced by B-cells that bind to viruses and prevent them from infecting other cells in the human body. Cytotoxic T-cells also react to viral antigens and attack infected cells.

Another contrasting aspect between the viral and bacterial infection exists in the manner, the immune system of the body treats them. The immune system is generally very good against most viruses. However, it is very slow to respond. It takes a long time like few days to weeks and in some cases, months to recognize and mount a defense against a virus. During that time, the virus freely multiplies and does so without any resistance, which can wreak havoc in the body. However, once the immune system encounters the virus, special cells “recognize” that virus. So if the body encounters that same virus again, the immune system responds pretty much instantly, destroying it before it starts to multiply.

In contrast to this, the purpose of a vaccine is to introduce the immune system with a weakened or killed virus. Some viruses, however, mutate rapidly, for example, influenza. If the human body gets exposed to influenza, the body will remember it, but within a year, the influenza virus can mutate so much that it is, as far as the human immune system is concerned, a brand-new virus (Brain, 2004). Similarly, some viruses attack the cells that are responsible for the immune response, like HIV. It doesn’t help to have the immune system recognize HIV if the cells that are supposed to respond are the ones that the virus has already destroyed.

Lastly, It is important, to note that there is currently no good way to distinguish between viral infection and bacterial infections. The resultant diagnostic uncertainty is a major driver in antibiotic over-prescription, which in turn is a major driver of antibiotic resistance. However, antibiotic resistance is emerging as a major threat to public health. Initial infections make the same turn in health, in the case of both viral and bacterial infections. At the preliminary stages, the body reacts to virus in the same manner. In the last stages the infections mainly remain the same.

However, when the defense against the disease reach during fighting, there happens some differences. In the case of bacterial infection, more of the innate immune system remains activated, as it contains some bacteria-specific features. Lastly, more granulocytes, mainly neutrophil and eorinophil, are recruited to the site to empty their granules. For viral infection, more killer T-cells activation is workable, as the infected cells will present virus from the inside and therefore needs to be destroyed.

# References

Brain, M. (2004). How your immune system works. *Found at Http://Science. Howstuffworks. Com/Immune-System4. Htm*.