Seroconversion Encyclopedia Article

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Seroconversion

Seroconversion is a term that refers to the development in the blood of antibodies to an infectious organism or agent. Typically, seroconversion is associated with infections caused by **bacteria**, **viruses**, and protozoans. But seroconversion also occurs after the deliberate inoculation with an **antigen** in the process of **vaccination**. In the case of infections, the development of detectable levels of antibodies can occur quickly, in the case of an active infection, or can be prolonged, in the case of a latent infection. Seroconversion typically heralds the development of the symptoms of the particular infection.

The phenomenon of seroconversion can be important in diagnosing infections that are caused by latent viruses. Examples of viruses include **hepatitis** B and C viruses, the Epstein Barr virus, and the **Human Immunodeficiency Virus** (**HIV**). When these viruses first infect people, the viral nucleic acid can become incorporated into the genome of the host. As a result, there will not be an immune response mounted against the virus. However, once viral replication has commenced antibodies to viral proteins can accumulate to detectable levels in the serum.

Seroconversion is am important aspect of Acquired **Immunodeficiency** Syndrome (**AIDS**). Antibodies to HIV can sometimes be detected shortly after infection with the virus, and before the virus becomes latent. Symptoms of infection at this stage are similar to the flu, and disappear quickly, so treatment is often not sought. If, however, diagnosis is made at this stage, based on presence of HIV antibodies, then treatment can begin immediately. This can be important to the future outlook of the patient, because often at this stage of the infection the **immune system** is relatively undamaged. If seroconversion occurs following activation of the latent virus, then immune destruction may already be advanced.

The presence of antibodies in the serum occurs much earlier in the case of infections that occur very soon after the introduction of the infectious microorganism. The type of **antibody** present can be used in the diagnosis of the infection. Additionally, seroconversion in the presence of symptoms but in the absence of detectable **microorganisms** (particularly bacteria) can be a hallmark of a chronic infection caused by the adherent bacterial populations known as biofilms. Again, the nature of the antibodies can help alert a physician to the presence of a hitherto undetected **bacterial infection**, and treatment can be started.