Fungi That Influence Diseases

Abstract

Cryptococcosis is caused by the fungi Cryptococcus neoformans and C.gattii. Both Cryptococcus neoformans and C. gattii can cause life threatening diseases. People who have weakened immune systems are mainly the people who are at risk of obtaining this disease. People with advanced AIDS/HIVS are also at risk of contracting this disease.

Introduction

Due to unfortunate events I was not able to schedule an interview with a professor. I will just be summarizing a professor’s published work with some other research on the subject matter. The article I will be using for my journalism column is Cryptococcus and Phagocytes: Complex Interactions that Influence Disease Outcome by Karen Wozniak. This article is all about how Cryptococcus neoformans and C. gattii are both fungal pathogens that cause life-threatening disease. They normally enter their host via inhalation into the lungs where they meet up with phagocytes, including macrophages and dendritic cells, whose response has a major impact on the outcome of disease.

Body

Cryptococcus possesses some virulence factors that aid in evasion of the immune system its ability to thrive inside the phagocyte. Cryptococcus neoformans is a fungus that lives in the environment. You can become infected with C. neoformans after breathing it in. Most people who are exposed to C. neoformans do not get sick from it. The people who do get sick from this fungus are people who have weakened immune system, especially those with advanced HIV/AIDS. C. gattii is a fungus that lives in the tropical and sub-tropical areas in the environment. It can also be found in some temperate areas around the world. You can become infected with this fungus, the same way you become infected with C. neoformans, by breathing it in.

The disease that Wozniak talks about in the article is Cryptococcosis. Cryptococcosis is a disease that mainly caused by C. neoformans and C. gattii in mammals and humans. Cryptococcosis normally affects the lungs, brain, or spinal cord. It can also affect other parts of the body as well. Some risk factors of this disease are AIDS, some lymphomas, and sarcoidosis. Cryptococcosis is an opportunistic infection for AIDS. When Cryptococcosis affects the brain and infects it the infection is called Cryptococcal meningitis. Cryptococcal meningitis is very life threatening and needs aggressive therapy. A treatment for Cryptococcal meningitis is amphotericin B with or without flucytosine and is followed by fluconazole. For nonmeningeal cryptococcosis fluconazole is the treatment and is usually effective. Patients without AIDS may not actually need treatment but the patients with AIDS are required to have treatments. Macrophages and phagocytes help kill invading pathogens and help active immune responses for those who are immunocompetent. M1 macrophages are brought by contact to the Th1 cytokine IFN-γ. M1 macrophages are great killers as they have increased nitric oxide (NO) and ROS production.

Conclusion

Cryptococcus is a fungus that can be exposed to most people, but it does not infect most people. It normal affects people with weakened immune systems. People with HIV/AIDS are some of the people that can be affected by this disease. This disease can be complicated to treat but with the help of macrophages and phagocytes to help with killing of pathogens and help activate the immune responses it can be possible.

# References

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