

*Editorial*

## Opportunistic infection

Landon Myer\*

Department of Epidemiology and Biostatistics, School of Public Health and Family Medicine, University of Cape Town,  
Anzio Road, Observatory South Africa 7925.

Accepted 07 May, 2021

### DESCRIPTION

An opportunistic infection is an infection caused by pathogens (bacteria, viruses, fungi, or protozoa) that take advantage of an opportunity not normally available, such as a host with a weakened immune system, an altered microbiota (such as a disrupted gut microbiota), or breached integumentary barriers. Many of these pathogens do not cause disease in a healthy host that has a normal immune system. However, a compromised immune system, which is seriously debilitated and has lowered resistance to infection, a penetrating injury, or a lack of competition from normal commensals presents an opportunity for the pathogen to infect.

### TYPES OF INFECTIONS

A partial listing of opportunistic organisms includes *Aspergillus*, *Candida albicans*, *Clostridium difficile*, *Coccidioides immitis*, *Cryptococcus neoformans*, *Cryptosporidium*, *Cytomegalovirus*, *Geomyces destructans* (bats), *Histoplasma capsulatum*, *Isospora belli*, *Polyomavirus JC polyomavirus*, the virus that causes Progressive multifocal leukoencephalopathy, Kaposi's Sarcoma caused by Human herpesvirus 8 (HHV8), also called Kaposi's sarcoma-associated herpesvirus (KSHV), Legionnaires' Disease (*Legionella pneumophila*), *Microsporidium*.

### CAUSES

Immunodeficiency or immunosuppression can be caused by Malnutrition, Fatigue, Recurrent infections, Immunosuppressing agents for organ transplant recipients, Advanced HIV infection, Chemotherapy for cancer, Genetic predisposition, Skin damage, Antibiotic treatment.

### PREVENTION

Since opportunistic infections can cause severe disease, much emphasis is placed on measures to prevent infection. Such a strategy usually includes restoration of the immune system as soon as possible, avoiding exposures to infectious agents, and using antimicrobial medications ("prophylactic medications") directed against specific infections.

### RESTORATION OF IMMUNE SYSTEM

- In patients with HIV, starting antiretroviral therapy is especially important for restoration of the immune system and reducing the incidence rate of opportunistic infections
- In patients undergoing chemotherapy, completion of and recovery from treatment is the primary method for immune system restoration. In a select subset of high risk patients, granulocyte colony stimulating factors (G-CSF) can be used to aid immune system recovery.

### Avoidance of infectious exposure

The following may be avoided as a preventative measure to reduce risk of infection:

- Eating undercooked meat or eggs, unpasteurized dairy products or juices
- Potential sources of tuberculosis (high risk healthcare facilities, regions with high rates of tuberculosis, patients with known tuberculosis)
- Any oral exposure to feces.
- Contact with farm animals, especially those with diarrhea: source of *Toxoplasma gondii*, *Cryptosporidium parvum*

\*Corresponding author. Landon Myer, E-mail: [landon.myer25@uct.ac.za](mailto:landon.myer25@uct.ac.za).

- Cat feces (e.g. cat litter): source of *Toxoplasma gondii*, *Bartonella* spp.

- Soil/dust in areas where there is known histoplasmosis, coccidiomycosis

- Reptiles, chicks, and ducklings that are a common source of *Salmonella*.

- Unprotected sexual intercourse with individuals with known sexually transmitted infections.

## **PROPHYLACTIC MEDICATIONS**

Individuals at higher risk are often prescribed prophylactic medication to prevent an infection from occurring. A patient's risk level for developing an opportunistic infection is approximated using the patient's CD4 T-cell count.