**PURPOSE OF STUDY**

The purpose of the study is to find out how the pathogenic infections occur which could be both invasive as well as toxigenic as a result of the production of surface virulence factors (allowing bacterial attachment, colonization and invasion) and secreted virulence factors which damage tissues or effect the production of cytokines. However the syndromes expressed by the pathogen differ from one strain to another strain that causes infection. However it is difficult in the clinic to distinguish between simple colonization and infection due to non-availability of diagnostic tools that could access the strength of the given isolate.

*P. aeruginosa* rarely infects healthy tissues, only in case when resistance power is less, it can infect all type of tissues. This explains why most infections are nosocomial lists the main pathologies caused by *P. aeruginosa*. A nosocomial infection, also known as a hospital-acquired infection or HAI, is an infection whose development is favoured by a hospital environment, such as one acquired by a patient during a hospital visit or one developing among hospital staff. Such infections include fungal and bacterial infections and are aggravated by the reduced resistance of individual patients. These infections should be considered as severe, and even life-threatening in specific situations, with the highest rates of mortality recorded for cases of bacteremia in neutropenic patients (30–50%) and cases of nosocomial pneumonia (45–70%). *P. aeruginosa* is well-adapted to the respiratory tract environment, especially in patients with chronic obstructive bronchopulmonary disease, who are immunocompromised, or who are hospitalized in intensive care units. Accordingly, *P. aeruginosa* is the predominant cause of nosocomial pneumonia in ventilated patients and of lung infection in patients with cystic fibrosis. It also causes chronic colonization of the airways of patients suffering from bronchiectasis, chronic obstructive bronchopulmonary disease or cystic fibrosis. In neutropenic cancer patients undergoing chemotherapy, bacteremia with *P. aeruginosa* is a common complication. Bacteremia and septicemia can also occur in patients with immunodeficiency related to AIDS, diabetes mellitus or severe burns. Most of these infections are acquired in hospitals and nursing homes. *P. aeruginosa* is also the third leading cause (12%) of hospital-acquired urinary tract infections. These infections can occur via ascending or descending routes and are usually secondary to
urinary tract catheterization, instrumentation or surgery. *P. aeruginosa* is the predominant causal agent of ‘swimmer’s ear’ (a form of external otitis) and of malignant otitis in diabetic patients (Guerin-Mechin et al 1999).