

Infectious disease research paper examples

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Introduction

Definitely, infectious diseases refer to a wide range of disease infections that can be transmitted from infected individuals to healthier ones. Additionally, such diseases mostly spread due to unhygienic surroundings. Furthermore, the mentioned diseases can further spread from animals to people.

Infectious diseases usually spread through a variety of ways inclusive but not limited to skin contact, blood contact, faecal matter as well as infectious discharges such as airborne droplets. Henceforth, this paper will explore on Tuberculosis as an example of infectious disease. Precisely, inflammatory responses by infected individuals will be explained. Moreover, mode of transmission, environmental predisposing factors, treatment and control methods, as well as health promotion strategies will be discussed.

Inflammatory response to tuberculosis

Essentially, tuberculosis is a contagious bacterial infection originating from *Mycobacterium tuberculosis* and it commonly causes detrimental effects on the lungs of an infected individual. *Mycobacterium tuberculosis* infection usually manifest with extreme and prolonged confined inflammatory responses. Additionally, the inflammatory responses are significant in the pathogenesis of the disease (Barry, 2008). Precisely, the infection activates the inborn immune response, which occurs due to conscription of mononuclear and polymorphonuclear phagocytes alongside the initiation of pro-inflammatory cytokines inclusive of tumour necrosis factors, by *mycobacterium tuberculosis* bacteria, occurring upon infection by the *mycobacterium tuberculosis*. Nonetheless, the inflammatory responses may

continue as the mycobacterium tuberculosis sets up itself inside the granulomas. As such the bacterium mycobacterium tuberculosis is responsible for initiation of inflammatory responses.

Mode of transmission of tuberculosis

The main route of transmission of tuberculosis is via the air. Precisely, this occurs as one breath in air droplets emanating from lungs as well as throats of individuals already infected by the disease. Undoubtedly, as an individual already diagnosed with active tuberculosis coughs or sneezes, they liberate a lot of particles into the air containing bacteria responsible for causing tuberculosis (Barry, 2008). Therefore, the disease transmitted to other people as they breathe air from individuals already with active tuberculosis.

Environmental factors that predispose individual to tuberculosis

Undeniably, smoke emanating from various sources are the known predisposing environmental factors to tuberculosis. Precisely, smokers release the cigarette smoke into the environment while smoking. Evidently, this increases the chances of occurrence of tuberculosis, since cigarette smoke contains nicotine, which interferes with the functioning of macrophages found in the lungs thus predisposing individuals to intensification and evolution of the disease from its latent stages (Renee, 2003). Additionally, overcrowding is another predisposing factor to tuberculosis. As such, overcrowding results in limited flow of air, hence in case an individual living within the overcrowded radius has the disease, it will predispose the others to the disease by a significant margin.

Standard treatments for tuberculosis

The most feasible and adequate standard form of treatment of tuberculosis is the instigation of suitable chemotherapeutic regimen. Precisely, tuberculosis management regimen is usually carried out in two phases consisting of the initiation phase and the continuation phase (Renee, 2003). The initiation phase also called the initial phase lasts for two months (but can be prolonged until the patient becomes culture negative), during which treatment is carried out on a daily basis with use of a predetermined dose combination consisting of ethambutol (E), pyrazinamide (P), rifampicin (R) as well as isoniazid (H). On the other hand, the continuation phase lasts for six months carried out with treatment on a daily basis by use of a fixed-dose combination using isoniazid (I) and ethambutol (E). If the continuation phase passes without achievement of susceptibility results, four-drug therapy is initiated and continued until achievement of susceptibility results.

Alternative treatment for tuberculosis

Alternative treatment regimens for tuberculosis are essential in cases where application of standard treatment regimens is not feasible. This may occur due to toxicity, resistance to some prime drugs as well as intolerance of the drugs. Alternative treatment can be carried out in various forms. A fixed combination dose of isoniazid (I), rifampicin (R), and ethambutol (E) can be given for nine months. A fixed combination dose of isoniazid (I) and ethambutol (E) can be given for twelve months. Finally, a fixed dose combination of ethambutol (E), isoniazid (I) and pyrazinamide can be administered for a period of eighteen months as an alternative treatment method (Renee, 2003). Evidently, standard treatment for tuberculosis are

recommended since there is a lower chance of making errors while prescribing the drugs hence there are lesser chances of development of drug resistance.

Vaccination/ immunization

The spread of tuberculosis can be controlled through vaccination of individuals. Precisely, this is achieved through use of a vaccine, Bacille Calmette Guerin (BCG) originating from a bacterial strain, *Mycobacterium bovis* (Barry, 2008). The vaccine controls tuberculosis since it reduces the risk of disease progression from the latent stages of the tuberculosis infection. The vaccine works makes the mycobacterium tuberculosis inactive, hence cannot cause the disease.

Isolation

Persons suspected as well as those diagnosed with active tuberculosis should be confined, since the disease is contagious, hence confinement helps in reducing the spread of the disease (Barry, 2008). However, such individuals should not be confined for a time longer than two weeks, but should be isolated only until they respond to treatment and stop coughing.

Respiratory protection

Persons who come in contact with persons diagnosed with tuberculosis, particularly healthcare professionals should wear respiratory protection gadgets to prevent them from contracting the disease.

Sensitization/training

Persons who are likely to come in contact with tuberculosis patients should be educated on the mode of spread of the disease, the symptoms, how to prevent the spread of the disease hence aiding in controlling the spread of the disease (WHO, 2009).

Deductively, inadequate control of the disease results in high rates of infections on the population, since tuberculosis is an extremely contagious disease that can easily be spread for one individual to the other.

Community health promotion strategies to help prevent spread of the disease

In order to help order to help prevent spread of tuberculosis amongst the population, there is need for incorporation of health and wellness promotion strategies inclusive of the following;

Ensure early diagnosis and treatment of tuberculosis infections

Ensure that patients on tuberculosis medication adhere to the medications to the later

Mobilize community participation in care, health promotion as well as prevention of tuberculosis

Control methods of the disease should be strengthened

References

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