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The Other Impacts of Infectious Diseases: Socio-Cultural Roles Beyond the Scene

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ABSTRACT

Introduction: Infectious diseases have exceeded the pathologic and clinic limitations to socio-cultural influences and have played non-classical roles inducing non-communicable diseases.

Objectives: To review the literature regarding the possibilities of infectious diseases to play roles that may lead to socio-cultural impacts based on our previous studies and others.

Methodology: We reported our experiments in the role of infectious diseases in non-communicable diseases.

Results: In the first experiment, we have found that about 50% of patients who underwent catheterization at King Abdulla University Hospital were positive for Chlamydia pneumonia as confirmed by ELIZA and PCR. From this study, infectious diseases led to heart diseases. The second set of experiments showed the localization of some viruses including Cytomegalovirus (CMV), and Human Papilloma Virus (HPV) in the adipose tissue of type 1 diabetic rats. This study indicated to a new possible role of inducing obesity and diabetes by viruses. The third set of experiments showed the findings of our studies regarding the impact of latent toxoplasmosis in possible association with crime. We found that there is a significant association between latent toxoplasmosis and each of physical violent actions, and crime based on seropositivity of IgM, and IgG of Toxoplasma. Other studies reported a role of latent toxoplamosis and religiosity.

Conclusions: Infectious diseases have roles exceeding known pathologic and clinical conditions that lead to non-communicable diseases and socio-cultural impacts.

Introduction

This study examines infectious diseases and their immune aspects as a measure of social interactions. The influence of infectious diseases exceeds the limits of infection and interferes with the social structure [1,2]. Infectious agents can be diagnosed with immune parameters, such as specific immunoglobulins for that agent, such as IgG and IgM [3].

Heart Diseases and Infectious Impacts

W run a study taking into consideration that atherosclerosis is more likely to have infectious origin. We studied the existence of Chlamydia pneumoniae (*C. pneumoniae*) among patients with coronary artery coronary (CAD). C. pneumonia has the ability to induce infection to various cells such as monocyte in circulation and individual and move from lungs into the local extra-pulmonary areas including subendothelium space within the wall of arteries. Additionally, the engagement of arterial wall requires the presence of macrophage foam cells and cholesterol as low density lipoprotein (LDL). The study included patients to be subjected for angiography. Both ELISA for IgG and PCR for genes OMP1 were carried out. ELISA testing was positive among 43.1%. The results were confirmed by PCR, the prevalence of *C. pneumoniae* was 27.7% [4].

Diabetes Type 1 And Infectious Perspectives

To answer the question regarding the potential of microbial infections and the occurrence of type 1 diabetes, we conducted a study and induced type 1diabetes in rat experimental model. The following viruses Cytomegalovirus (CMV) and Human Papilloma Virus (HPV) were detected in the adipose tissues of diabetic rats. It can be concluded from these experiments that adipose tissue may play a new role in the occurrence of type 1 diabetes through retaining infectious agents rather than metabolic points of view. Previous studies have put emphasis on the potential of viruses to interfere with fatty tissue in diabetic models, particularly an avian adenovirus [5].Taken together, it is possible that viruses have roles in the obesity burden and as a result on the occurrence of diabetes; this may imply that obesity to be a carrying source of viruses which illuminates the consideration that diabetes is more likely to exceed the possibility of the metabolic views.

Infectious Diseases and Community

Due to the consideration that infectious diseases are common in the community, we have carried out a series of studies to investigate the influences of infectious diseases in social context. Infectious diseases have manifestations such as inflammatory processes on patients including cardinal signs of inflammation such as high temperature degrees [6]. Pathogens in latent stage do not produce classical clinical pictures from inflammatory point of view, and accordingly, such pathogens are not accounted for clinical outcomes. One of the examples of latent pathogens is latent toxoplasmosis by Toxoplasma gondii (*T. gondii*). It invades the brain and remains latent for about 20 years or more and works to reprogram the brain of its host to make appropriate environmental conditions to its existence through creating changes in brain chemistry [7]. Our studies put focus in the relationship between the influence of being infected with latent toxoplasmosis and crime. Significant relationships were found between latent toxoplasmosis and violence, road traffic accidents, and crimes. In one study, we investigated the frequency of both IgG and IgM of T. gondii among prisoners who had actions of physical violence nature. It was interesting to find a significant association between latent toxoplasmosis and the status of physical violent actions (p=0.003) [8]. We expanded our horizon through studying another group of prisoners who were classified as murders. The results of our study revealed that latent toxoplasmosis was significantly associated with crime commitment (p=0.010). Furthermore, approximately 20% of crimes cases were attributed to latent toxoplasmosis [9]. We also studied the relationship between latent toxoplasmosis and road traffic accidents. The results of our study revealed that no significant relationship between latent toxoplasmosis and traffic road accidents (p=0.0828) [10].

Latent Toxoplasmosis and The Status of Religiosity

As previously described, microbes can influence patterns of behavior of both human and animals [11-13]. Latent toxoplasmosis has been reported through several studies to be associated with violence and aggressiveness such as suicide [14-16]. Previous studies such as the study of Panchin et al. demonstrated the ability of some pathogens to invade human brain and to induce some religious rituals for the enhancement of microbial propagation. This phenomenon is referred to as "biomeme hypothesis", and it implies that microbes incline individuals into particular religious rituals. It was interesting to be found that pathogens have the ability to influence human behaviors, and further, some religious rituals are reflected as good indicators for these influences [17].

Conclusion

The present study indicated to other dimensions of infectious diseases from various perspectives and showed further that infectious diseases have more importance than it is previously thought.

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