

3rd Indo-Global Summit & Expo on **Healthcare**

October 05-07, 2015 New Delhi, India

Mathematical models on the dogmas of HIV contagions

Priti Kumar Roy

Jadavpur University, India

Recent development in ART treatment against HIV can help AIDS patients to fight against HIV. But the question that whether the disease is to be partially or totally eradicated from HIV infected individuals still remains unsolved. Usually, the most effective treatment for the disease is HAART which can only control the disease progression. But as the immune system becomes weak, the patients cannot fight against other diseases. Immune cells are activated and proliferated by IL-2 after the identification of antigen. IL-2 production is impaired in HIV positive patients and intermittent administration of immune activator IL-2 together with HAART which is a more effective treatment to fight against the disease. We formulated a basic mathematical model on the effect of IL-2 together with RTIs therapy in HIV positive patients. Similarly, Dendritic Cells (DCs) play a dual role by enhancing both HIV infection progression, as well as antiviral immune response. To explore the implications of these dual roles, we have formulated our mathematical model and analyzed the model by both analytical and numerical approaches incorporating the dual roles of DC. By using an impulsive differential equation, we have also studied the effect of DC-based vaccination. Our analytical as well as numerical study shows that the optimal schedule of treatment for best result is to be obtained by systematic drug therapy. But at the last stage of treatment, the infection level raises again due to minimization of drug dosage. Thus we study the perfect adherence of the drugs and found out if RTIs are taken with sufficient interval then for fixed interval of IL-2 therapy, certain amount of drug dosages may be able to sustain the immune system at pre-infection stage and the infected CD4+T cells are going towards extinction. Modern advancement in the field of HIV research shows amazing progress in quality of lifestyles that performs a rigorous impact on HIV reproductions in populations. Researchers have produced a wealth of information about the disease, including a number of critical tools and interventions to diagnose, prevent and treat HIV. Broadcast media have tremendous reach and influence, particularly with young people, further we incorporate the influence of media and investigate the effect of awareness program in disease outbreaks as a policy tool to effect multiplier objective to combat the disease in modern society. How such informational wealth can be used to aware the society is a matter of national interest to mitigate the problem and ensure an AIDS free environment through mathematical perceptive.

Biography

Priti Kumar Roy is a Senior Faculty of Jadavpur University. He obtained his Doctoral degree from Jadavpur University. He is researching on epidemiological issues on the chronic infectious disease like HIV, Cutaneous Leishmaniasis, Filariasis etc. Till now he has got over seventy five peer reviewed publications. He has edited two books, "*Insight and Control of Infectious Disease in Global Scenario*" by Intech Publishers and another book is in publication process under Springer India entitled "*Mathematical Models for therapeutic approaches to control HIV disease transmission*". He has guided six Doctoral students and eight more are pursuing their doctoral degree under his able guidance.

pritiyu@gmail.com

Notes: