Mathematical modelling of Trichomonas Vaginalis and HIV co-infection

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HIV/AIDS is one of the most severe health problems globally [2]. It is of paramount interest to consider all factors and causes leading/resulting to its high prevalence rate. Trichomonas Vaginalis (TV) is a sexually transmitted infection (STI) that is mainly common in women [4]. TV is of interest to this study because of its susceptibility to HIV: It increases the chances of an infected individual acquiring HIV if sexual contact is made with an infected individual. Also, an individual with TV is more likely to transmit HIV to his/her sexual partner(s) [3]. A deterministic model for the transmission dynamics of TV and HIV co-infection is constructed. Qualitative properties and the stability of the model are analysed. Parameter values of known endemic prevalence levels of TV and HIV obtained from the literature, are used to fit the model. Treatment strategies of TV and HIV (such as condom-use, counselling, and treatment) are considered and assessed. Numerical simulations are carried out to illustrate theoretical results. This study provides useful results for the curb of HIV/AIDS by using control interventions for TV infection.

References

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