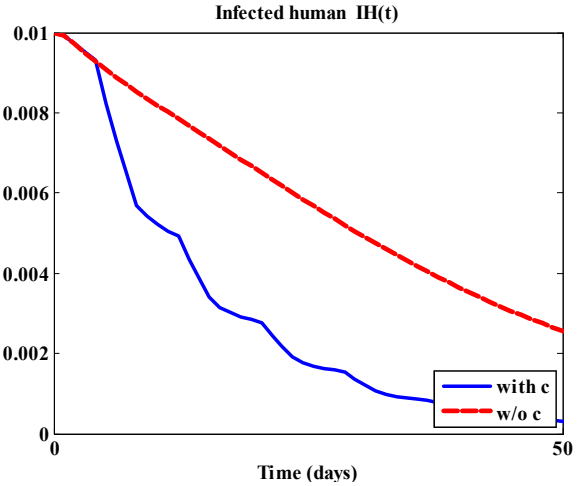

Figure 4: The evolution of infected humans with and without control.

Because of the nature of the chikungunya disease and the way it spreads between humans and mosquitoes, we have to show also numerically the importance of that dependence by reducing the number of the vector. The graph in Figure5 show the positif impact of the optimal measure to eradicate the Chikungunya disease by presenting the evolution of infected mosquitoes with and without control.

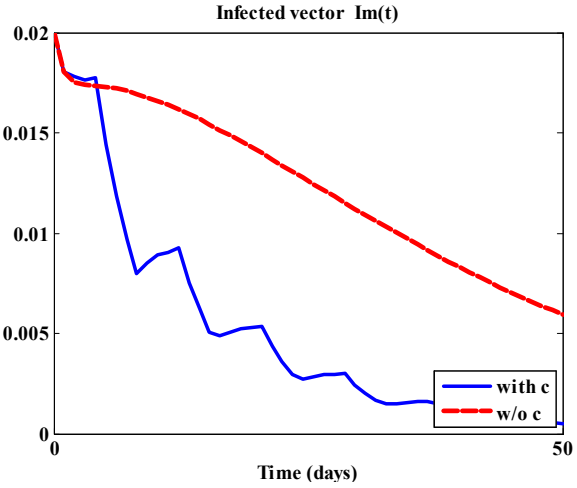

Figure 5: The evolution of infected vector with and without control.

6. Conclusion

Time dependent intervention strategies have been implemented, in the present work, to limit the bad effects of vector-borne disease \ss on a finite time interval. All interventions or strategies are important to consider in order to reduce the Chikungunya disease, but may not be efficient while taking on vision human and mosquitoes mobilization. By the way of prevention efforts and for instance, after each rainfall, it is advisable to check around the houses regularly and systematically empty or clean all the water receptacles where mosquitoes could lay eggs. By the same way to reduce the Chikungunya disease, In this paper, two main strategies have been implemented, we attempt to reduce the numer of infected human and mosquitoes, the number of eggs, larves and adults insects, and the cost of the optimal strategy. This aim was proved numerically which show the effectiveness of the optimal approach.

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