OPTIMAL CONTROL OF AN HIV MODEL

H. R. ERFANIAN\textsuperscript{a} and M. H. NOORI SKANDARI\textsuperscript{b}

\textsuperscript{a} Department of Mathematics & Statistics, University of Science and Culture, Tehran, Iran. Erfanian @usc.ac.ir
\textsuperscript{b} Department of Applied Mathematics, Ferdowsi University of Mashhad, Mashhad, Iran. hadinoori344@yahoo.com

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Abstract

We consider an HIV model, based on optimal control, for identifying the best treatment strategy in order to maximize the healthy cells by using chemotherapies with minimum side effects. In this paper, a new approach is introduced which transform the constraints of problem to the integral constraints. By an approximation, we obtain a finite dimensional linear programming problem which give us an approximate solution for original problem.

KeyWords: HIV Model, Optimal Control, Linear programming, Measure theory, Chemotherapy.

1- Introduction

One of the worst diseases in whole world is AIDS (Acquired Immunity Deficiency Syndrome). It is caused by the human immunodeficiency virus (HIV). There is still much work to be completed in the search for an anti-HIV vaccine. Most of the chemotherapies are aimed at killing or halting the pathogen, but treatment which can boost the immune system can serve to help the body fight infection on its own. The new treatments are aimed at reducing viral population and improving the immune response. This brings