INTRODUCTION

HIV stands for human immunodeficiency virus (HIV). It is the virus that can lead to acquired immunodeficiency syndrome (AIDS). Unlike some other viruses, the human body cannot get rid of HIV. It affects specific cells of the immune system called CD4 cells or T cells. Over time, HIV can destroy so many of these cells that the body can’t fight off infections and disease. When this happens, HIV infection leads to AIDS.

No safe and effective cure currently exists, but scientists are working hard to find effective treatment, and remain hopeful. Meanwhile, with proper medical care, HIV can be controlled. Treatment for HIV is often called Anti Retro viral Therapy (ART). It can dramatically prolong the lives of many people infected with HIV and lower their chance of infecting others. Before the introduction of ART in the mid-1990s, people with HIV could progress to AIDS in just a few years. Continuous Anti Retroviral Therapy (cART) helps the infected individuals to lead normal lives. Systemic illness like cardiovascular disease, diabetes, cancer, liver dysfunction and neurocognitive impairment are listed to increase with increasing age in HIV infected individuals. There have been studies where it is found that ART itself is the cause of accelerated ageing. HIV is a chronic disease and the treatment continues for long duration. Eye is also affected leading to Neuro Retinal Degeneration also termed as HIV-NRD. With thinning retinal nerve fiber layer, subtle loss of color vision contrast sensitivity, visual field deficits and subnormal electrophysiologival responses have also been noted.

Study done on HIV patients in South Africa by Sophia Pathai has revealed about the Biomarkers of ageing considering the Leucocyte telomere length and CDKN2A expression. Four ocular parameters were analyzed: Lens density was found to have increased with increasing age. Retinal Vessel Calibre was assessed and arterioles were found to be narrow, which was associated with chronological ageing. Third parameter was the endothelial cell count, and its density, which was found considerably less but the cell size increased, The hexagonal shape of endothelium was found to be less with age. Last parameter was the Retinal Nerve Fibre Layer [RNFL] which was found to be thinner in all the quadrerents [superior, inferior, nasal and temporal] which was suggestive of
increasing age. The physiological changes taking place in the eye with age is well understood. There have been studies conducted which confirms senile ocular changes like loss of endothelial cell, lenticular changes like loss of transparency and changes in refractive index giving rise to cataract and accommodation insufficiency [Presbyopia], Retina also loses its sensitivity and depletion in pigment epithelium leading to low vision and consequently blindness have also been reported.

The biomarkers of ageing along with the ocular changes caused due to ageing are already known. The study on decreasing accommodation associated with HIV has to be studied. Lens density increases which means refractive index changes too. Accommodation will be hampered, but no study has been done so far on measurement of Amplitude of accommodation associated with HIV.

There have been few studies which show accelerated ageing in HIV infected individuals. There are studies which show changes in ocular parameters with age. There are no studies that have looked at the effect of HIV and ART on accommodation from this part of the world. The present study will focus on the ocular changes with respect to accommodation in HIV+ infected patient with or without ART.