

Early Hiv Infection, Cancer Pathophysiology: Similarities, Differences and Implications

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Abstract

Cancer and Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome (HIV/AIDS) are associated with chronic oxidative stress, inflammation and immune activation. Although similarities in pathophysiology of these diseases are well established, the knowledge has not been applied in understanding carcinogenesis. Understanding the basis of similarities in pathophysiology of the two diseases could be crucial in understanding carcinogenesis. This study reviewed existing knowledge, research gaps in oxidative stress, inflammation and immune activation in carcinogenesis and early HIV infection, to stimulate new research interests to accelerate development of future management strategies. Medline, PubMed, Scopus and Science direct databases were searched using the keywords: oxidative stress, carcinogenic, acute HIV infection, chronic inflammation and immune activation reactive oxygen species (ROS). The identified studies were critically appraised for relevance, methodology, results compared. Chronic oxidative stress, inflammation and immune activation were common in the two diseases and might possibly be the common drivers of pathophysiology. Competition for limited nutrients and oxygen by rapidly dividing cells, changes in microenvironment and bone marrow could also account for the characteristic differences. More accurate understanding of these processes might provide new insights into carcinogenesis, facilitate accelerated development of future therapeutic targets, inform policy on cancer prevention, screening and early diagnosis. **Keywords:** *Oxidative stress, Carcinogenesis, HIV infection, Chronic Inflammation and Immune activation*