

Review Four Serious Oncogenic Tumors of Different Origin

Aqeel Abbas Noaman* and Shahad Nazar Mustafa

Middle Technical University (MTU), Iraq

***Corresponding Author:** Aqeel Abbas Noaman, Middle Technical University (MTU), Iraq.

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Abstract

Oncogenic viruses are a dangerous viruses of great significance in oncology and the causative virus usually occurs after a chronic viral infection. This review aims to demonstrate four cancerous tumors of different origin caused by common and dangerous virus in terms of causative agent, tumor location, risk factors, tumor type, characteristic symptoms, treatment potential. The topics and information about oncogen viruses were searched from websites such as Google, Google Scholar, Pubmed and ResearchGate, and after reading them carefully, the appropriate ones were selected from the phrases and paragraphs with the highlight of the title of the requested article. After reviewing all the four oncogenic tumors of a different origin, we concluded that viruses play an important role in changing the pathways of normal cells in different body tissues when the viral disease becomes chronic and neglects its early diagnosis and begins to identify appropriate methods of treatment. We can say that the only way to prevent these viruses is to stay away from all sources of infection and have safe sexual behavior, taking care to take vaccines, especially in areas where viral diseases are high, and also to start producing and developing vaccines against viral diseases that medicines often fail to cure.

Keywords: *Oncogenic Tumors; Burkitt's Lymphoma; Liver Cancer; Kaposi's; T-Cell Leukemia*

Introduction

Oncogenic viruses (tumor viruses) are defined as pathogens of great significance for humans, pets and farm animals, these pathogens can be classified into different families, they either DNA or RNA tumor viruses [1]. DNA viruses encodes the viral proteins necessary to complete the viral replication process, while RNA viruses carry changed variants of the normal host cell genes that have no role in viral replication [1]. In general, the origin of cancerous tumors is different, either sarcoma, carcinoma, lymphoma or leukemia and myeloma [2]. And for each of these types begins to develop from a certain place or part of the body for example carcinoma begins from the skin and the tissue covered to the internal organs and sarcoma begins from the connective and supportive tissues such as bones, lymphoma begins from the cells of the immune system and leukemia begins from the blood forming cells [2].

Objective of the Study

To demonstrate four cancerous tumors of different origin caused by common and dangerous virus in terms of causative agent, tumor location, risk factors, tumor type, characteristic symptoms, treatment potential.

Methods

At the beginning, topics and information about oncogen viruses were searched from websites such as Google, Google Scholar, Pubmed and ResearchGate, and after reading them carefully, the appropriate ones were selected from the phrases and paragraphs with the highlight of the title of the requested article. After that, it was focused on the tumor caused by a virus, where the researcher chose four cancerous tumors with a different origin, caused by known and dangerous virus, including (Burkitt's lymphoma, Hepatocellular carcinoma, AIDS-Kaposi's sarcoma, Adult T-cell Leukemia) and a main title was placed for each of the tumors mentioned and the information were written regarding the causative agent, tumor location, risk factors, tumor type, characteristic symptoms, treatment potential.

Details of oncogenic tumors reviewed

Burkitt's lymphoma

It is B cell derived childhood cancer that affect young children by 30% - 50% of all recorded children cancers, particularly those who live in sub-Saharan Africa, it was diagnosed as a human oncogenic cancer more than three decades ago [3]. This type of cancer can occur after infection with the Epstein-Barr virus (EBV), one of the most widespread viruses in the world [4]. This virus belongs to herpes virus family [5]. At present, the relationship between this virus and Burkitt's lymphoma has been well established [4]. Risk factors for exposure to this disease vary in areas inhabited by children's families, especially those where malaria and AIDS are prevalent [6]. Infection with this virus occurs from person to person through saliva where the primary infection begins in the epithelial cells of the laryngopharynx and then spreads to B cells and in most cases the infection will be mild and called Mononucleosis and after many years of that primary infection can develop Burkitt's lymphoma [5]. In most cases, the disease affects the areas of the external lymph nodes, especially the jaws, endocrine organs and abdomen and it characterized by fever, night sweating and weight loss [3]. At present, children affected by the disease are given intensive chemotherapy with supportive treatment to improve their health status [7].

Liver cancer (hepatocellular carcinoma)

Viral hepatitis B and C, caused by hepatitis B virus (HBV) and hepatitis C virus (HCV), respectively are a risk factors to liver cancer, which is a public health problem in the United States, as nearly 15,000 people die each year from liver cancer associated with these chronic diseases [8]. Sixty-five percent of liver cancers are either associated with viral hepatitis B or C [9]. Viral hepatitis B is transmitted through needle injection and its contaminated devices, the placenta of the infected mother, the exchange of razor blades, contaminated tattoo tools, and toothbrushes as well as sexual activity [10]. It can be prevented by taking the vaccine and therefore can avoid exposure to liver cancer [9,10]. The main difference between both viruses is that hepatitis C virus is rarely transmitted through sex because it is usually transmitted from the infected person to the healthy person through the blood carrying the virus [10]. Hepatitis C can be prevented by vaccination and can be cured too, especially when the disease is diagnosed early [9]. If the detection of hepatitis B or C is delayed and also the follow-up with the specialist is neglected, the outcome will be liver cancer, early-stage liver cancer can be treated with local ablation, surgical removal and liver transplantation and the appropriate treatment method is chosen based on the tumor [11].

HIV-Kaposi's sarcoma

Is a viral etiological disease which still most common malignancy in the population infected with human immune deficiency virus (HIV), particularly in African people is most common in men who have sex with other men and also it occurs in children where incidence rates are high [12,13]. It's a vascular tumor most commonly involving and always diagnosed in HIV-infected patients [12]. Kaposi sarcoma at the beginning of the disease is usually characterized by the appearance of lesions on the skin and the distinctive color of these spots may be purple, red or brown, often developing and spreading on the legs or face causing painful swelling in the legs and feet [14]. The main risk factor for this tumor is immunodeficiency [15]. Researchers suggest add chemotherapy to antiretroviral (HAART) regimen to be beneficial in disease progression [16]. To prevent this tumor, people should be careful to avoid HIV transmissions.

Adult T-cell leukemia

A rare cancerous disease of T cells and mature CD4 caused by human T-cell lymphotropic virus type 1 (HTLV1) [17]. This virus is believed to cause infection to nearly 20 million people worldwide, mostly Japanese, Southern Americans and Caribbeans, particularly Brazilians and Peru people [18]. Virus transmission occurs through blood transfusion, sexual contact and breast milk [19]. It is worth mentioning that this tumor is characterized by poor prognosis and short duration of survival compared to tumors of other T cell malignancies, due to the weakness or failure of inherited chemoresistance and immunosuppression associated HTLV1 virus [17]. Blood from blood donors has been shown to be an effective step to prevent virus transmission, in addition to focusing on wearing condoms before sex and having proper and safe sexual behavior; however, an effective virus vaccine should be developed [20].

Conclusion

After reviewing all the four oncogenic tumors of a different origin, we concluded that viruses play an important role in changing the pathways of normal cells in different body tissues when the viral disease becomes chronic and neglects its early diagnosis and begins to identify appropriate methods of treatment. We can say that the only way to prevent these viruses is to stay away from all sources of infection and have safe sexual behavior, taking care to take vaccines, especially in areas where viral diseases are high and also to start producing and developing vaccines against viral diseases that medicines often fail to cure.

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