

Intendments and chemoprevention of cancer and role of preventive vaccines.

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Abstract

Years of unsuccessful attempts to target established tumors with vaccines have meant that patient survival is only possible when used in a prophylactic context, as traditional infectious disease vaccines usually do. While true primary cancer prevention is only a long-term goal, secondary and tertiary prevention are yielding promising clinical results. The combination of immunopreventive cancer strategies and recently approved checkpoint inhibitors holds further promise for future cancer control successes, but prevention requires a significant reduction in currently reported toxicities. These considerations, together with our improved understanding of tumor antigens, leave room for optimism about the future.

Keywords: Cancer vaccines, Cancer immunoprevention, Cancer immunotherapy.

Introduction

The goal of primary prevention is to remove risk factors from the lives of healthy people in order to prevent the development of cancer entirely. The concept stems from research on exogenous carcinogens, such as occupational carcinogens and tobacco smoke. Subsequent exposure to endogenous carcinogens is an anti-inflammatory agent that suppresses carcinogenic inflammation of the colonic mucosa [1].

Vaccines against cancer-causing viruses have changed the history of primary cancer prevention. The first successful example of this was a vaccine against hepatitis B virus, which causes chronic hepatitis, cirrhosis and liver cancer. A pioneering study in Taiwanese children showed a 70% reduction in hepatocellular carcinoma after a vaccination program. A vaccine against human papillomavirus was soon developed. HPV is a family of cancer-causing sexually transmitted viruses that cause a variety of neoplastic diseases ranging from benign lesions to metastatic cancers. Pre-approval studies have shown the vaccine to be highly effective in preventing cancer by up to 100%. Widespread vaccination programs could lead to the elimination of deadly cancers for the first time in human history, just as vaccination led to the eradication of smallpox. Secondary cancer prevention is formed around the concept of cancer progression [2,3].

Symptomatic, malignant tumors not only result from the dimensional growth of smaller lesions, but also from the progressive accumulation of multiple genetic alterations that drive a normal cell to change into a metastatic tumor. Hence, early diagnosis can uncover neoplastic lesions that are smaller and, more importantly, less advanced and more easily cured than those that are diagnosed after the onset of symptoms.

Secondary prevention is implemented at the population level by means of mass screenings, such as Pap tests, mammography scans, and colonoscopy procedures. Early diagnosis in itself is obviously useless without effective early therapy. Thus, to be more precise, secondary cancer prevention consists of early diagnosis followed by early therapy. In most instances, it is surgery that is used to definitively treat early neoplastic lesions discovered in early diagnosis. Where this is the case, immunoprevention is not expected to play a role [4].

However, there are a variety of conditions that border on high-risk pre-neoplastic and early-stage neoplasia, for which surgery may not be the treatment of choice, and which are currently often left untreated. , are treated only with less effective chemo preventive agents. There is currently a lack of highly effective approaches to prevent the progression of oral leukoplakia, asbestosis, and monoclonal immunoglobulinemia, to name a few. These and many others are potential candidates for the development of vaccines and other forms of immunological secondary prevention [5].

Conclusions

Heart failure is a complex syndrome with a variety of signaling pathways and pathological processes that may emerge as biomarkers of the circulatory system. Many such biomarkers are now clinically available, and monitoring their levels in the blood can provide physicians with information regarding the diagnosis and severity of heart failure, as well as prognosis and treatment strategies can also be improved.

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