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CARCINOMA PROSTATE - CAN WE CURE BY PHARMACOTHERAPY?

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ABSTRACT

In recent days, we are very near to treatment of all the diseases with the help of the pharmacotherapeutic treatment with exception of cancer & aids. Pharmacotherapies are medications used in the treatment of drug dependence. There has been considerable research, nationally and internationally, into the use and effectiveness of this type of treatment. Since more than four decades, as results of epidemiology, basic research and clinical research have shown improved quality of life and drugs for cancer treatment. Cancer treatment is the most promising strategy for reducing both its incidence and the mortality due to this disease. There is a list of types of the treatment as examples: hormonal treatments, chemotherapy, vaccine, anti-angiogenic drugs, radioactive treatment etc. Improved understanding of prostate cancer biology in recent years led to the development of drugs directed against precise tumorigenesis-associated molecular pathways, and significant expansion of treatment horizons for these patients. New drug development for the prostate cancer treatment hold promise but more work is needed to determine how the pharmaceuticals can optimally extend the survival with a new age of cancer free society.

KEY WORDS

Prostate Cancer, Pharmacotherapy, ADT

INTRODUCTION

Pharmacotherapies are medications used in the treatment of drug dependence (1). There has been considerable research, nationally and internationally, into the use and effectiveness of this type of treatment. Since more than four decades, as results of epidemiology, basic research and clinical research have shown improved Quality of Life and drugs for cancer treatment (2). Cancer treatment is the most promising strategy for reducing both its incidence and the mortality due to this disease. The 5-α-reductase inhibitors finasteride and dutasteride for prostate cancer, and the development of vaccines for viruses, may be useful in association with specific cancers treatment (2). With approval of one more drug "Enzalutamide" by United States Food and Drug Administration (FDA), we move a step forward towards the treatment of late-stage prostate cancer, that have been shown to extend life in men faced with the disease. While four more drugs docetaxel, cabazitaxel injection, Abiraterone, and Sipuleucel-T approved by FDA after 2004, well tolerated, with fewer side effects reported than with previous treatments. While one more drug Radium-223awaited for approval from the FDA. Androgen deprivation therapy (ADT), is the first treatment for the prostate cancer (3-6).

If discuss regarding new treatments by all the possible ways, which might be used in clinic in the near future: hormonal treatments

(Abiraterone and MDV3100), a new chemotherapy (Cabazitaxel), a cellular vaccine (Sipuleucel-T), anti-angiogenic drugs (Bevacizumab, Aflibercept), a new radioactive treatment (Alpharadin) and a new bone-protective agent (Deno-sumab) (7). The improved understanding of prostate cancer biology in recent years led to the development of drugs directed against precise tumorigenesis-associated molecular pathways, and significant expansion of treatment horizons for these patients (8).

Simultaneous development of individual clinical development, many classes of noncytotoxic pharmaceutical and natural products already in clinical development creating hope of many opportunities for rational combination therapy (9). Pharmacodynamic basis for combination either with antiandrogens or without antiandrogens are feasible. It is anticipated that in the future, a selective inhibitor may be combined with other agent classes. A novel target for rational combinations is the hypermethylation of GST-PI leading to functional silencing of this key anticarcinogen defense enzyme in precursors (HGPIN) and prostate cancer (9).

The emergence of new powerful tools such as gene chip cDNA microarrays for multiplex gene expression profiling and proteomic analysis of tissue based and secreted proteins will accelerate the identification of new molecular targets, strategic endpoints, cohorts at risk and the design of rational combination trials (9).

Although no controlled studies have been performed to date to document the safety of testosterone therapy in men with prostate cancer, the limited available evidence suggests that such treatment may not pose an undue risk of prostate cancer recurrence or progression (10, 11).

Genomic, proteomic and other molecular approaches for the pathways identification can be the future paths that are associated with cancer initiation and development, as well as refining the search for immunologically modifiable causes of cancer (2).

Given the global incidence of prostate cancer and its sociological impact, it remains a challenging disease to clinicians and researchers alike. In the last few years several new drugs have been added to the armamentarium of prostate cancer therapy and offers survival benefit to patients with prostate cancer (12, 13). However, effective drugs are still needed that offer extended survival benefit and alter the natural history of the disease. Recent efforts have focused on better understanding the underlying biology and genetics heterogeneity of the disease and identified novel targets that can be utilized for drug development and therapeutics in the future (1). In this review we present an overview of the genetic landscape of prostate cancer, novel targets in the prostate cancer therapy and the results of key clinical trials of these novel drugs (14, 15).

New drug development for the prostate cancer treatment hold promise but more work is needed to determine how the pharmaceuticals can optimally extend the survival with a new age of cancer free society.

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