

Precision oncology-next generation personalized cancer management

Volume 13 Issue 6 - 2022

Shrihari TG

Professor, Department of Oral Medicine and Oral Oncology, Krishna Devaraya College of Dental Sciences and Hospital, India

Correspondence: Shrihari TG, Professor, Department of Oral Medicine and Oral Oncology, Krishna Devaraya College of Dental Sciences and Hospital, Bangalore -562157, Karnataka, India, Email drshrihariom@gmail.com

Received: December 20, 2022 | **Published:** December 30, 2022

Short Communication

Cancer is a complex tempo-special disease mainly due to external environmental factors such as tobacco, chemicals, infectious agents, alcohol, and diet leading to various cancers such as colon cancer, oral cancer, prostate cancer, lung cancer, gastrointestinal cancer, head and neck cancer etc. Cancer is a leading cause of death worldwide accounting for nearly 10 million deaths worldwide in 2020 nearly one in six deaths.

Even after advanced cancer treatments still the prognosis has not improved much with many adverse effects and expensive. The current cancer treatment should include precision cancer management for better, inexpensive, safe, effective with increase survival rate.

External environmental factors induce release of inflammatory mediators from inflammatory cells such as chemokines, cytokines, and enzymes involved in tumor initiation, tumor promotion and tumor progression by cell proliferation (Cyclin D, Cyclin E), cell survival (BCL-2, BCL-XL, survivin), angiogenesis (IL-8, COX-2, VEGF, HIF-1 α), genomic instability (ROS, RNS), immune modulation (IL-4, IL-5, IL-10, IL-13, TGF- β), and invasion and metastasis (UPA, Mmp's 2, 9). Chronic inflammatory mediators which are involved in all stages of tumor progression helps in early biomarker for detection of cancer, therapeutic target for treatment of cancer and prognostic marker for accessing the stage of the cancer and improve survival rate in patients with cancer. Where chronic inflammation is considered as a seventh hallmark of cancer.

Precision Cancer treatment depends on personalized cancer type and care, focusing only on cancer cells without involving the normal healthy cells, which helps in better, safe without adverse effects, effective, inexpensive, improving the survival of cancer patients by our own immune cells to fight against cancer cells. A Nobel laureate Hungarian biochemist Albert Szent Gyorgi said "I do not know how to kill the cancer cells without killing normal cells, cancer cells and normal cells works exactly same". There are many advanced treatments for cancer such as chemotherapy, radiotherapy, and surgery but the cancer prognosis is not improved with many adverse effects and expensive.

Targeted therapies, cancer immunotherapy, gut microbial therapy, cellular therapy, cancer genomic therapy is many such precision oncotherapy for cancer patients. Targeted therapies include interleukines (IL-1 β , TNF- α , IL-6, IL-8, TGF- β), growth factors (EGF, FGF, VEGF), enzymes (COX2, UPA, Mmp's 2, 9), Transcription

factors (NF-KB, STAT-3, HIF-1 α). Cancer immunotherapy includes interleukins (IL-2, IFN- γ , IL-12), T cells and B cells used to kill cancer cells by its anti-inflammatory activity and antitumor activity.

Gut microbial therapy includes consists of gut bacterial microbiota in treating patients with cancer involve in anti-inflammatory activity, and immune stimulatory activity.

Cellular therapy consisting of targeting the BCL-2 and BCL-XL anti-apoptotic mediators for cancer cell survival and targeting Cyclin D and cyclin E for cancer cell proliferation. Cancer genomic therapy consists of identification of frequently mutated tumor suppressor genes such as P53, PTEN, Ink4, PSA in cancers such as lung, head and neck, prostate and melanoma. APC and MADR2 tumor suppressor genes are mutated or deleted in colon cancers. BRCA1 and BRCA2 genes are mutated in patients with breast cancer.

Depending on the expression of the factors such as growth factors, cytokines, transcription factors and functional changes, genetic mutations in different cancer types and stages of the cancer helps in targeting the particular factors helps in management of cancer in a better, safe, effective, precisely, which allows human immune cells to fight against cancer will improve the survival of cancer patients in a holistic way.

Acknowledgments

None.

Conflicts of interest

Authors declare that there is no conflict of interest.