

Short Communication**Onco- awareness**

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Cancer: Transition required from the conventional curative oncology to preventive oncology for better outcomes.

Oncos is a Greek word referring to tumor which means swelling from which the term Oncology was inspired while its synonym cancer depicts tumors of epithelial origin. Both Oncology and cancer are used interchangeably to describe the spectrum of malignant diseases. Neoplasia depicts any new growth including non-fatal benign diseases also. According to the global cancer statistics, the death rates are constantly increasing and the survival rate still remains poor worldwide.

Today cancer is a global public health issue that requires better modalities for early detection and treatment. Malignancy is the second most common cause of death after cardiovascular diseases in western countries. The most common cancers are lung and breast cancers. Other cancer types which are prevalent include prostate, bladder, stomach, head and neck, oesophagus, lymphoma, leukemia, kidney, uterus etc. Neoplastic growth can occur anywhere in the human body with significant variation in age, sex, region, ethnicity, family history and habits. Several epidemiological causes of cancer as documented in the studies hitherto are genetics, lifestyle factors, occupational, infections particularly viral and certain cytotoxic drugs.

The exponential rise in cancer worldwide is reflecting the acute lack of awareness among the global population regarding risk factors of cancer and the importance of preventive measures and cancer screening. Understanding the essentials of cancer is the key to prevention among the global population. However, implementing preventive interventions is difficult because it involves lifestyle modifications across the globe with a holistic approach. Creating global awareness involves not only medical, behavioral modifications but reformation at social and political levels. It is well established that smoking,



drinking alcohol play a massive role in the development of cancer. But achieving global abstinence from such habits is not straightforward and involves multiple barriers individually, socially and politically.

Advanced diagnosis will reduce the death rates due to cancer and increase the overall survival rates. But early detection of cancer is difficult due to poor understanding of the molecular pathways leading to genetic mutations in different kinds of cancer across the world. Researchers are trying to develop novel biological tools which will enable early detection leading to better clinical outcomes. Research studies are reporting that new age molecular profiling methods are showing tremendous potential to advance the clinical management of cancer. These genetic and high-throughput methodologies are helping researchers to identify the checkpoints in the molecular pathways which if used as therapeutic targets would cause tumor regression. Also, these biomolecules could be used in novel interventional therapies like immunotherapies, genetic therapies as antitumor agents to treat cancer which will pave a new way transitioning from chemo-radio therapeutics to biological therapeutics in cancer.

The cancer atlas genome project was developed as an initiative towards an in-depth understanding of cancer at the genetic level to identify the malignant transformation ahead of the development of the clinical symptoms and treat patients at initial stages as advanced stages lead to poor prognosis. The cancer genome project provided insights on the genomic, epigenomic, proteomic, transcriptomic data of cancer patients to discern the mutational patterns in cancer patients. Because tumor promoting genes (ONCOGENES) is the arch culprit behind cancer development and understanding the interactions of oncogenes with different cells in the human body will be the key to develop novel biological tools to fight this debilitating disease which is incurable. Hence, a deeper understanding of the etiopathogenesis of cancer will lead to better diagnosis and treatment planning.

Along with the advanced technologies, increased awareness among the global population in the age of social media about the genetic mutations associated with cancer will encourage people to become more vigilant and careful towards their health. Global awareness could be achieved by several initiatives such as educational programs alerting people about carcinogenic foods and substances, genetic changes caused by carcinogenic materials, extensive knowledge about anti-carcinogenic foods, the inclusion of more fruits and vegetables in the diet, particularly children and active participation in cancer screening programs, empowerment programs strengthening communities of cancer patients and introduction of new health policies implementing cancer prevention programs.

Cancer is a disease that needs attention both at the molecular and population level. It is not possible to reduce the staggering mortality rates of cancer across the world only focussing on the curative aspect to treat the clinical outcomes of cancer. It is essential to emphasize different aspects of preventive



oncology equally and aim to treat not only the symptoms of cancer but also cancer-promoting genes which are the roots of this disease. New technologies like CRISPR cas 9, nano-biomedicine and genomic sequencing, medical epigenomics will play a vital role in preventing and fighting cancer in the new era of biological therapeutics.

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