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Commentary

Generalization of Malignant Growth Biomarkers

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DESCRIPTION

Cancer is a genetic disorder involving in dynamic changes in the genome leading to uncontrolled growth, ability to invade and metastasize.

Cancer biomarker

Malignant growth biomarkers are biomolecules delivered either by the tumor cells or by different cells of the body in response with of the tumor. Each cell type has its extraordinary molecular signature and recognizable attributes. For instance, levels or exercises of horde of genetic material, proteins, or other molecular fragments; subsequently, biomarkers can promote the sub-atomic meaning of malignant growth. The main objective was giving descriptive information and performing nitty gritty survey about Tumor biomarker with respect to their molecular and biochemical portrayal and their clinical usage in screening, diagnosis, development, or helpful definition for tumor patients.

Pharmacokinetics and pharmacodynamics

Biomarkers of cancer may also be used to assess the most appropriate treatment regime for the cancer of a single individual. Some individuals metabolize or alter the chemical structure of drugs differently because of variations in the genetic makeup of each person. In certain cases, decreased metabolism of some drugs can produce hazardous conditions in which the body accumulates high levels of the drug. As such, drug dosing decisions may benefit from screening for such bio marks, in particular cancer treatments [1-5].

Role of biomarkers

Risk assessment: These biomarkers are also associated with cancer predisposition and can tell the potential risk of a woman developing breast cancer. In an effort to detect breast cancer at an early stage, healthcare providers often suggest that individuals with these gene mutations consider more regular screenings.

Screening/detection: Real-time measures of the existence of cancer are biomarkers for screening and detection. By producing and releasing immune factors (such as antibodies) or by shedding serum proteins, circulating tumor cells and DNA fragments into the bloodstream, the body may respond to the presence of a tumor.

Diagnosis: Though biopsy is the only way to confirm a diagnosis of breast cancer, biomarkers can assist with diagnosis and help identify the primary origin of the tumor.

Prognosis: Prognostic biomarkers may provide, regardless of treatment, information about the expected outcome of a patient. Some breast cancers are more serious than others, and biomarkers can help assess which cancers can develop and/or metastasize rapidly.

Prediction: Biomarkers may be used to predict the reaction of a patient to medication or to assess the appropriate dosage or type of drug used for the treatment of breast cancer. Since breast cancer is a heterogeneous disease, the same treatment approaches may respond differently to various cancers.

Monitoring: Biomarkers can be used after treatment to predict and monitor a patient's breast cancer recurrence of the disease.

Uses of biomarkers in studies on cancer

Developing drug targets: Biomarkers are also used in the entire cancer drug development process, in addition to their use in cancer medicine. In the 1960s, for example, researchers found that the majority of patients with chronic myelogenous leukemia had a particular genetic abnormality called the Philadelphia chromosome on chromosomes 9 and 22. They produce a cancer-causing gene known as BCR-ABL when these two chromosomes merge. Biomarkers are also used in the entire cancer drug development process, in addition to their use in cancer medicine. In the 1960s, for example, researchers found that the majority of patients with chronic myelogenous leukemia had a peculiar genetic abnormality called the Philadelphia chromosome on chromosomes 9 and 22. They produce a cancer-causing gene known as BCR-ABL when these two chromosomes merge.

Surrogate endpoints: In the field of surrogate endpoints, another promising area of biomarker application is Biomarkers

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serve as stand-ins in this application for the effects of a treatment on cancer progression and survival. The use of approved biomarkers will hopefully discourage patients from undergoing tumor biopsies and long clinical trials to decide if a new medication works. The metric for evaluating the efficacy of a medication in the current standard of care is to verify whether it has reduced cancer progression in humans and eventually whether it prolongs survival. However, if failing drugs could be removed from the production pipeline before being taken to clinical trials, effective biomarker surrogates could save significant time, effort, and money.

Some ideal characteristics of biomarkers with surrogate endpoints include:

- The mechanism that causes cancer should include biomarkers.
- Biomarker changes can correspond with changes in the disease.
- Biomarker levels should be large enough that they can be quickly and accurately assessed.
- Biomarker levels or presence can readily differentiate between normal, cancerous and precancerous tissue.
- Successful cancer treatment should alter the level of the biomarker.
- The biomarker level does not alter spontaneously or in response to other factors not associated with successful cancer treatment.

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