Commentary

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Commentary on Role of Biomarkers in Cancer

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Biomarker

The biochemical measurements of a biological state are biomarkers. Biomarker is defined as the evaluated and assessed as the biological processes, pathogenic processes or pharmacological responses to a therapeutic intervention. Between January 2002 and December 2017, a total of 92 patients were diagnosed with TTAI at our regional trauma center. Out of 92 patients, 22 patients underwent clamp-and-sew technique for traumatic descending aortic rupture.

Cancer Biomarker

Cancer Biomarkers (CB) are biomolecules formed in response to the tumor by either the tumor cells or other cells of the body, and CB may be used as a cancer screening/early detection method, as a diagnostic, prognostic or indicator of a patient's overall outcome.

Types of Cancer Biomarker

There Are Various Types of Biomarker

Prognostic Biomarker

Pharmacodynamics Biomarkers

Predictive Biomarkers

Prognostic biomarker

A prognostic biomarker aids specify how the disease may spread within the individual when a disease is already identified. The prognostic marker can be useful in the identification of patients for treatment, but the response to treatment is not correctly predicted.

Pharmacodynamics biomarkers

The systemic evolution of the cancer cells requires discovery of the validation and the accomplishment of the informative biomarkers. The pharmacokinetic parameters are the drug exposure, half-life, Total Clearance Rate (CL), Apparent Volume of Distribution (V^d). The pharmacodynamics parameters which describe site of the target action of the drug on the body. The Drug concentration and the effect of pharmacologic effect describe the relationship.

Predictive biomarkers

Predictive biomarkers are measurements of the probability of a specific therapy responding or not responding and enable the identification of patients who are more likely to benefit from a given treatment, thus preventing the toxicity of unsuccessful therapies in other patients.

Role of Biomarkers in Cancer

In determining a precise diagnosis, cancer biomarkers may also be useful. This is especially the case if it is important to decide if tumors are of primary or metastatic origin. Researchers will screen the chromosomal alterations present on cells at the primary tumor site against those found at the secondary site to allow this distinction.

The secondary tumor can be identified as metastatic if the alterations match, while if the alterations vary, the secondary tumor can be identified as a different primary tumor. For instance, because of tumor cells that have gone through apoptosis, people with tumors have high levels of circulating tumor DNA.

This tumor marker can be identified in the blood, saliva, or urine. In view of the high molecular heterogeneity of tumors observed by next-generation sequencing studies, the feasibility of finding an appropriate biomarker for early cancer diagnosis has recently been challenged.

Prognosis and Treatment Predictions

In cancer medicine, another use of biomarkers is for disease prognosis, which takes place after cancer has been diagnosed by a person. Biomarkers can be useful here to assess the aggressiveness of a cancer detected as well as its probability of reacting to a treatment given. In part, this is because tumors that display unique biomarkers may be susceptible to therapies linked to the expression or presence of that biomarker.

The Elevated Levels of Metallopeptidase Inhibitor 1 (TIMP1), a marker associated with more severe types of multiple myeloma, elevated Estrogen Receptor (ER) and/or Progesterone Receptor (PR) expression, are examples of such prognostic biomarkers. Markers associated with better overallzsurvival in breast cancer patients; HER2 gene amplification, a marker indicating that breast cancer is likely to respond to treatment with trastuzumab; a proto-oncogene c-KIT exon 11 mutation, a marker indicating

that the Gastrointestinal Stromal Tumor (GIST) is likely to respond to treatment with imatinib; and EGFR1 tyrosine kinase domain mutations, a marker indicating that the Gastrointestinal Stromal Tumor (GIST) is likely to respond to treatment with imatinib; and EGFR1 tyrosine kinase domain mutations, a marker signaling a patient's Non Small Cell Lung Carcinoma (NSCLC), are likely to respond to treatment with gefitinib or erlotinib.