Predictive Biomarkers Help to Assess the Most Likely Response to a Particular Treatment Type

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INTRODUCTION

A predictive biomarker is used to identify individuals who are more likely to respond to exposure to a particular medical product or environmental agent. The response could be a symptomatic benefit, improved survival, or an adverse effect. Biomarkers assist in early diagnosis, ailment prevention, drug goal identification, drug reaction etc. Biomarkers are biological molecules found in tissues, blood, and other bodily fluids. They are signs that represent normal or abnormal processes, conditions, or diseases. Prognostic biomarkers are associated with clinical outcome and are used to identify patients with a more aggressive disease course. Predictive biomarkers are measures of the likelihood of responding or not responding to a particular therapy, allowing the identification of patients most likely to benefit from a particular therapy protect other patients from treatment toxicity. Biomarkers are useful in some of ways, together with measuring the development of ailment, evaluating the simplest healing regimes for a selected most cancers type, and organizing long-time period susceptibility to most cancers or its recurrence.

DESCRIPTION

Prognostic markers help classify patients into groups, leading to accurate drug discovery. Commonly used prognostic markers in cancer include stage, size, grade, nodule, and metastasis. In addition to these general markers, there are prognostic markers specific to different types of cancer. For example, estrogen levels, progesterone, and HER2 are unique markers for breast cancer patients. There is ejvidence that genes that function as tumor suppressors or carcinogens may function as prognostic markers through changes in gene expression or mutations. In addition to genetic biomarkers, there are also biomarkers de-

tectable in plasma or body fluids that are metabolic or protein biomarkers. Traditional prognostic markers in oncology include tumor size, staging, lymph node proliferative status and metastasis. Large tumors, late staging, presence of cancer cells in multiple distant lymph nodes, and observation of metastases are often associated with a poor prognosis. In recent years, advances in molecular engineering, genomics, cancer biology and sequencing technology have created opportunities to discover and validate new biomarkers of prognosis, especially molecular prognostic markers.

Expression of estrogen and progesterone receptors can determine the blessings of hormone remedy, even as the gain of treating breast most cancers sufferers with Herceptin is decided *via* way of means of the expression of HER2. While DNA sequences suggest what a cell might be doing, expression profiles tell us what it's actually doing at a particular point in time. Whether certain mRNA molecules are present and at what level they are expressed suggests whether a particular gene is "on" and to what extent it is expressed. Therefore, mRNA profiling can provide more detailed and timely downstream transcriptional information about cancer. Technologies for mRNA profiling include RT-qPCR for sensitive analysis of a small number of mRNA targets, microarrays for multiplex profiling down to the transcriptome level, and next-generation RNA sequencing.

CONCLUSION

A technique for identifying protein markers by immunohistochemistry (IHC). His IHC staining of the protein marker of interest is performed on the tumor tissue and the stained tissue shows the presence and distribution of the protein marker of interest. The advantage of this technique is that it can provide morphological information on protein expression levels and

that the procedure is standardized and inexpensive. There are many benefits to making use of a predictive marker in most cancers remedy such as higher affected person control minimizing pointless laid low with side consequences with in the long run the incorrect remedy choice, decreasing lack of precious time even as figuring out whether or not a remedy will offer any gain, and a discount in value to each the affected person and the broader fitness community.

ACKNOWLEDGEMENT

CONFLICT OF INTEREST