Emerging Role of Genomic Profiling of Advanced Tumors to Aid in Treatment Selection: What Nurses Should Know

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Abstract
Emerging Role of Genomic Profiling of Advanced Tumors to Aid in Treatment Selection – What Nurses Should Know

Objective:
• Explain the role of a new genomic assay (Target Now™) in guiding oncology treatment plans.
• Describe the Target Now™ assay.

Significance and Background
• Predicting effective treatments with chemotherapy or targeted agents for our patients with advanced disease or rare tumors is a common but difficult clinical problem.
• Unique biomarkers in a tumor provide opportunity for individualized therapy.
• Markers may be identified by FISH, DNA Sequencing, Microarray analysis, IHC, PCR and other techniques.
• Target Now™ is a molecular profiling test which analyses the genetic and molecular changes unique to each person’s tumor.
• The tests predict which treatments are likely to be effective or ineffective for the individual patient by comparing test results with published clinical literature.

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Patient Presentation
CASE STUDY: A 52 year old female presented with flank pain. CT scan showed a 20cm mass around the renal area.

She underwent extensive surgical resection of a retroperitoneal leiomyosarcoma in Jan., 2008. Tumor was Grade 2; T2b,N0,M0 with close surgical margins. She had an excellent performance status and requested further therapy for recurrent disease with several standard chemotherapy regimens. She had an excellent performance status and requested further therapy for recurrent disease with several standard chemotherapy regimens. She had an excellent performance status and requested further therapy for recurrent disease with several standard chemotherapy regimens. She had an excellent performance status and requested further therapy for recurrent disease with several standard chemotherapy regimens. She had an excellent performance status and requested further therapy for recurrent disease with several standard chemotherapy regimens.

CT Scan
PET Scan

Leiomyosarcoma
Leiomyosarcomas are rare mesenchymal tumors derived from smooth muscle cells. Higher grade tumors tend to metastasize and become systemic.

Target Now Assay Report
A biopsy of a metastatic lesion was submitted to Caris Life Sciences (Phoenix, AZ) for Target Now™ assay. Results were available within two weeks and are shown.

What Therapy Should Be Offered Now?
• Patient had excellent performance status. She requested further therapy for pulmonary and hepatic metastases.
• There were no available Phase 1 studies.
• A biopsy of a metastatic lesion was submitted for Target Now™ assay.

Systemic Therapy
• She was treated with MAI chemotherapy (Mesna, Adriamycin and ifosfamide) X 4 months.
• Treatment switched to Gemcitabine and Docoexam with good response for 14 months.
• Disease progressed and treatment was switched to Sorafenib (Nexavar) with stabilization for 12 months.
• Patient was found to be ineligible for Phase 1 Clinical Trial because of an expected short life span.

Discussion
Results reported several agents that were predicted not to be of benefit and included others which could have benefit. This allowed for a choice of temozolomide – an agent not normally used to treat sarcoma. She has tolerated this oral non-toxic agent well with stabilization of her disease.

Progressive multiple lung metastases

Conclusions
• The tests shown above predict response of an established treatment for a particular tumor type.
• Target Now™ predicts response or resistance to therapies not necessarily established for the tumor tested.
• Both approaches are examples of steps toward achieving “personalized medicine” in the care of oncology patients.

References