Aditya Bardia, J Cancer Sci Ther 2016, 8:7(Suppl)
http://dx.doi.org/10.4172/1948-5956.C1.075

Clinical implementation of tumor genotyping to guide development of personalized regimens for patients with metastatic breast cancer: Challenges and opportunities

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It is now well recognized that cancer is not one disease. Molecular characterization of tumor is particularly important because identification of actionable targets could potentially lead to rational therapy selection and enhance access to matched personalized therapy for that individual. Our group along with others recently demonstrated the presence of acquired mutations in the ligand binding domain of estrogen receptor (ESR1) which can lead to constitutional activation of the estrogen receptor in the absence of ligand (estrogen) and thereby result in resistance to standard endocrine therapies particularly aromatase inhibitors. Furthermore, genotyping can also help identify the molecular traits associated with "exceptional responders" and help select "right drug for the right patient". Circulating tumor cells (CTCs) can serve as potential "liquid biopsies" offering a potential relatively non-invasive tool for tumor genotyping as well generation of ex vivo cultures as demonstrated by our group. In this talk we will review how routine genotyping of tumor and circulating tumor cells could be utilized in the clinic for targeted therapy selection and development of personalized therapies for patients with cancer.

Biography

Aditya Bardia is a board certified Medical Oncologist at the Massachusetts General Hospital Cancer Center of Harvard Medical School, USA. He has been involved in clinical development of tumor genotyping and circulating tumor cells (CTCs) to facilitate therapy selection. He is the Principal Investigator of several clinical trials investigating the role of targeted therapy combinations for breast cancer. He is on the Editorial Board of the ASCO University. He has received various research awards and is interested in developing successful targeted and personalized therapies to improve the outcomes of patients and families afflicted with breast cancer.

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