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The new era of targeted therapies in HER2+ve breast cancer

Palanki Satya Dattatreya
Omega Hospitals, India

Background: Approximately 20% of breast cancers are HER2+ve, aggressive form of tumor. Trastuzumab, a humanized anti-HER2 monoclonal antibody (MAB) directed against the extracellular domain of HER2, is the standard of care for HER2-positive primary breast cancer and first-line MBC. However, most cases of advanced disease eventually progress. Thus there is an unmet need for alternative treatments.

What is new? Pertuzumab is a fully humanized MAB which binds to domain II of HER2, essential for dimerization and prevents the formation of HER2 dimers. In patients with HER2+ve MBC, the addition of pertuzumab to trastuzumab leads to unprecedented median overall survival of 56.5 months. Trastuzumab emtansine (T-DM1) is a novel HER2-directed Antibody Drug Conjugate (ADC) that combines the cytotoxic activity of a chemotherapeutic with the biologic activity of an antibody, via a stable linker. On binding of T-DM1 to HER2 receptor the ADC is internalized and DM1 is released. Inpatients with metastatic breast cancer who previously received trastuzumab and a taxane, T-DM1 resulted in significant overall survival compared tocapecitabine and lapatinib with favourable safety profile. Further studies will determine use of these agents in early stages of breast cancer where intent is cure.

Global perspective: NCCN and AGO guidelines recommend a pertuzumab and Trastuzumab emtansine for 1st and 2nd line treatment of HER2+ve MBC as preferred treatment options respectively.

Conclusion: The pertuzumab and T-DM1 is substantial advance for patients with HER2-positive BCs and a new milestone in personalized medicine.

Biography

Palanki Satya Dattatreya has completed his DM in Medical Oncology from Gujarat Cancer Research Institute, Ahmedabad. Now he is the Consultant Medical Oncologist at Omega Hospitals, Hyderabad. He has published more than 10 papers in reputed journals.

drsatyadmonco@gmail.com

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