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Use of clinicopathologic tumor characteristics to predict results of Oncotype DX 21-gene breast cancer assay: A review of current nomograms

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The newest version of NCCN guidelines (1.2017) endorses consideration of Oncotype DX 21-gene breast cancer assay results in decision making for administration of systemic adjuvant chemotherapy treatment of hormone receptor-positive, *HER2*-negative, node negative (pN0) or micrometastatic node positive patients (pN1mi), with tumor>0.5 cm. Oncotype DX assay was the most frequently performed assay in the United States, accounting for 97% of all ordered multigene breast cancer tests (based on NCDB 2010-2012 data analysis). The use of multigene assays for breast cancer patients is also embraced by the 8th edition of *AJCC Staging Manual* which will be in use from January 2018, with an idea that the inclusion of multigene assays in the TNM staging offers further prognostic stratification of breast cancer patients. Unfortunately, multigene assays are expensive and are not affordable or available for the majority of breast cancer patients (~30% of eligible breast cancer patients underwent Oncotype DX testing in the United States and <20% in the European countries). The need for finding surrogate (s) for Oncotype DX assay became apparent several years ago. Three calculators/nomograms are so far freely available online that use clinicopathologic characteristics of breast carcinomas to predict Oncotype DX results: University of Pittsburgh Magee equation, John Hopkins breast recurrence estimator and The University of Tennessee Medical Center Breast Cancer Nomogram predicting for a high-risk and a low-risk Oncotype DX recurrence score. Methodologies used in creation of these calculators/nomograms will be discussed. Results obtained by the use of calculators will be presented using several hypothetical breast cancer patients and their tumor characteristics.

Biography

Amila Orucevic obtained her MD degree from Medical School of University of Sarajevo, Bosnia and Herzegovina (1983) and completed her PhD from The University of Western Ontario, London, Ontario, Canada (1996). She is a Board Certified Pathologist for Anatomic and Clinical Pathology by The American Board of Pathology (2002), and Board Certified Pathologist for Anatomic Pathology by The Royal College of Physicians and Surgeons of Canada (2002). Currently she is Attending/Staff Pathologist, Associate Professor, and Director of Research at the Department of Pathology, The University of Tennessee Medical Center, Knoxville, TN, USA. Her research interests are in breast cancer, as well as gynecologic and colorectal cancer. She has published 26 papers in peer reviewed journals.

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