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Prognostic value of ER, PR, and HER2 breast cancer biomarkers and AJCC's TNM staging system on overall survival of Caucasian females with breast cancer: An institution's 10 year experience

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The Breast Cancer Task Force and many recently published studies questioned relevance of AJCC's TNM staging system in predicting outcomes in breast cancer because of the increasing understanding of prognostic impact of breast cancer biomarkers (ER/PR/HER2). Inclusion of biomarkers into the TNM system (bTNM) with goal of improving the TNM staging accuracy was suggested. We tested whether any of three recently proposed bTNM systems could improve the prognostic accuracy of breast cancer staging in our institution's breast cancer patient population (>90% are Caucasians). 1253 Caucasian women diagnosed with primary invasive breast carcinoma from 1/1998-7/2008 entered our study. Breast cancers were grouped according to their TNM stage, or recently proposed bTNM systems: #1-bTNM-triple negative ER/PR/HER2 phenotype (TNP) vs. non-TNP; #2-bTNM ER status/grade/TNM stage; #3-bTNM-five-group ER/PR/HER2 subtype classification system recommended by St. Gallen International Consensus Panel in 2011.Overall survival (OS) was measured. TNM stage was significant predictors of OS in any bTNM used (#1-#3). In #1-bTNM, TNP significantly worsened prognosis/survival only in higher TNM stages (III&IV). In #2-bTNM, ER/grade and in #3-bTNM, five-group ER/PR/HER2 subtype classification had no significant impact on OS. Our data support the traditional TNM staging as a continued relevant predictive tool for breast cancer outcomes and show that biomarkers may improve the accuracy of TNM staging in advanced stages of breast cancer, but are dependent on classification system used. We propose systematic analyses of proposed bTNM ER/PR/HER2 classification systems in different study environments (both nationally and internationally) before biomarkers are fully incorporated into the TNM staging system (bTNM).

Biography

Amila Orucevic obtained MD degree from Medical School of University of Sarajevo, Bosnia and Herzegovina (1983) and 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. She published 21 papers in reputed peer reviewed journals.

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