Detection and diagnosis

FACTORS INFLUENCING AGREEMENT BETWEEN CORE NEEDLE BIOPSY AND SURGICAL RESECTION SPECIMENS REGARDING KI67 LABELING INDEX – RESULTS OF A RETROSPECTIVE ANALYSIS

Z. Bago-Horvath¹, F. Rössler¹, P. Wimmer¹, K. Pinker-Domenig², R. Bartsch³, P. Dubsky⁴, T. Helbich⁵, M. Rudas¹
¹Clinical Institute of Pathology, Medical University of Vienna, Vienna, AUSTRIA, ²Department of Radiology, Medical University of Vienna, Vienna, AUSTRIA, ³Department of Medicine 1, Clinical Division of Oncology, Medizinische Universität Wien, Vienna, AUSTRIA, ⁴Department of Surgery, Medical University of Vienna, Vienna, AUSTRIA, ⁵Radiology, Medical University of Vienna, Vienna, AUSTRIA

Reliable determination of Ki67 labeling index on core needle biopsy specimens is essential for assessing breast cancer intrinsic subtype and making preoperative treatment decisions. However, results of studies investigating concordance between core needle biopsy (CNB) and surgical resection (SR) specimens are conflicting. Therefore we attempted to analyze the role of sampling-associated, clinical and tumor-related pathological factors in influencing agreement of Ki67 labeling index between CNB and SR specimens. 120 matched pairs of CNB and SR specimens of patients with invasive breast cancer were selected from the archives of the Clinical Institute of Pathology of the Medical University of Vienna. Ki67 labeling index was determined according to recent recommendations. Results were considered concordant with a divergence of <10% points. Agreement was calculated by Cohen's kappa test. Correlation of agreement with clinicopathological factors, including grading score components according to Elston and Ellis, was analyzed by Chi²-test. We found substantial agreement of Ki67 labeling index between CNB and SR specimens indicated by a weighted kappa value of 0.884. Concordance was significantly associated with the BI-RADS class of mammography, histological grade, intrinsic subtype and immunohistochemically determined p53 status. Interestingly, concordance was significantly associated with all separate grading score components in CNB samples such as extent of glandular differentiation, nuclear polymorphism and number of mitotic figures. This association was not seen for grading components in SR specimens. We conclude that agreement of Ki67 labeling index between CNB and SR specimens is strongly influenced by intrinsic subtype, tumor grade as well as individual grading score components. These factors, including radiological tumor characteristics represented by the BI-RADS assessment, are likely to mirror tumor heterogeneity that might compromise obtaining a CNB sample representative of the entire tumor.

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