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Interobserver Variability in Ductal Carcinoma In Situ of the Breast

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Abstract

Objectives: Since most patients with ductal carcinoma in situ (DCIS) of the breast are treated upon diagnosis, evidence on its natural progression to invasive carcinoma is limited. It is estimated that around half of the screen-detected DCIS lesions would have remained indolent if they had never been detected. Many patients with DCIS are therefore probably overtreated. Four ongoing randomized noninferiority trials explore active surveillance as a treatment option. Eligibility for these trials is mainly based on histopathologic features. Hence, the call for reproducible histopathologic assessment has never sounded louder.

Methods: Here, the available classification systems for DCIS are discussed in depth.

Results: This comprehensive review illustrates that histopathologic evaluation of DCIS is characterized by significant interobserver variability. Future digitalization of pathology, combined with development of deep learning algorithms or so-called artificial intelligence, may be an innovative solution to tackle this problem. However, implementation of digital pathology is not within reach for each laboratory worldwide. An alternative classification system could reduce the disagreement among histopathologists who use "conventional" light microscopy: the introduction of dichotomous histopathologic assessment is likely to increase interobserver concordance.

Conclusions: Reproducible histopathologic assessment is a prerequisite for robust risk stratification and adequate clinical decision-making. Two-tier histopathologic assessment might enhance the quality of care.

Keywords: Artificial intelligence; Breast; Ductal carcinoma in situ; Interobserver variability; Interrater agreement; Nuclear atypia; Reproducibility.

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