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Original Article

The reliability of histological grade in breast cancer core needle biopsies depends on biopsy size: a comparative study with subsequent surgical excisions

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Abstract

Aims

In breast cancer patients undergoing neoadjuvant chemotherapy, histological grading needs to be performed on core needle biopsies (CNBs) that may not be representative of the whole tumour when they are small. Our aim was to study the influence of biopsy size on agreement rates for histological grade between CNBs and subsequent surgical excision biopsies (SEBs).

Methods and results

We calculated agreement and Cohen's κ between CNBs and SEBs of 300 early-stage breast cancers. The number of cores, total core length, total tumour length and tumour/tissue ratio were assessed for each CNB set. Agreement rates for grade were calculated for different classes of core number and tumour/tissue ratio, and for total core lengths and tumour lengths per CNB set in 5–15-mm intervals. Agreement on grade between CNBs and SEBs was 73% (κ = 0.59), with underestimation of grade in CNBs in 26% of cases and overestimation in 1% of cases. There was significantly higher concordance between CNBs and SEBs at a total core length of ≥50 mm than at a total core length of <50 mm (83% versus 68% agreement, $P = 0.007$), at a tumour length of ≥15 mm than at tumour length of <15 mm in CNBs (79% versus 67% agreement, $P = 0.036$), and at three or more cores than at fewer

than three cores (75% versus 58% agreement, $P = 0.048$). The tumour/tissue ratio, pathological tumour size and radiological tumour size were not statistically different between concordant and discordant cases.

Conclusions

Agreement rates for histological grade in CNBs versus SEBs improve with increasing biopsy sample size.

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Citing Literature

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