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1: Am J Clin Pathol. 1995 Jul;104(1):42-9. Related Articles, Links

Proliferation markers in breast carcinoma. Mitotic figure count, S-phase fraction, proliferating cell nuclear antigen, Ki-67 and MIB-1.

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Proliferative rate is an important prognostic marker in breast carcinoma. However, the best measurement method has not been established. This study evaluated mitotic figure counts (MFC) as mitoses per 10 high power fields (HPF) and per 1,000 cells, S-phase fraction by flow cytometry, and Ki-67, MIB-1, and proliferating cell nuclear antigen (PCNA) positivity by immunohistochemistry in 135 breast carcinomas. There was strong correlation between the two MFC methods and significant correlation between MIB-1 positivity and all proliferation markers except Ki-67. S-phase fraction showed significant correlation with all proliferation markers except PCNA. Ki-67 positivity correlated only with S-phase fraction, and PCNA positivity only with MIB-1 and mitoses per 10 HPF. High MFC was associated with other prognostic factors: high histologic tumor grade, absence of biochemical and immunohistochemical hormone receptors, and DNA aneuploidy, but not lymph node involvement or tumor size. MIB-1 positivity was also associated with these parameters, except lymph node involvement, tumor size, and DNA aneuploidy. Mitotic figure count and MIB-1 positivity were associated strongly with disease-free survival, up to 46 months. The other proliferation markers were associated with fewer prognostic factors and showed weak or absent association with disease-free survival. The best proliferation markers are mitotic figure counting (either method) or MIB-1 positivity.

Publication Types:
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MeSH Terms:
- Antibodies, Monoclonal/analysis*
- Antibodies, Monoclonal/immunology
- Breast Neoplasms/chemistry

- Breast Neoplasms/pathology*
- Breast Neoplasms/ultrastructure
- Carcinoma, Ductal, Breast/chemistry
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- Proliferating Cell Nuclear Antigen/analysis*
- Receptors, Estrogen/analysis
- Receptors, Progesterone/analysis
- S Phase*
- Tumor Markers, Biological/analysis

Substances:

- Antibodies, Monoclonal
- Proliferating Cell Nuclear Antigen
- Receptors, Estrogen
- Receptors, Progesterone
- Tumor Markers, Biological

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