Predictive value of p27\textsuperscript{KIP1} expression in premenopausal women with early-stage hormone receptor-positive breast cancer

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Abstract: Decreased expression of the cyclin-dependent kinase inhibitor p27\textsuperscript{Kip1} is associated with poor prognosis in breast cancer. The objective of the present study was to determine the predictive value of p27\textsuperscript{Kip1} in premenopausal women with early-stage hormone receptor-positive breast cancer. We examined tumor specimens from 512 breast cancer patients who were enrolled in the Austrian Breast & Colorectal Cancer Study Group (ABCSG) Trial 5. In this trial, premenopausal, hormone-receptor positive breast cancer patients with stage I and II disease were randomized to receive either five years of tamoxifen plus three years of goserelin or six cycles of cyclophosphamide, methotrexate and 5-fluorouracil (CMF). In the present laboratory study to ABCSG Trial 5, p27\textsuperscript{Kip1} expression was assessed by immunohistochemistry. Statistical analyses were performed to test for interaction between treatment and p27\textsuperscript{Kip1} status. High p27\textsuperscript{Kip1} expression (nuclear p27\textsuperscript{Kip1} staining in \( \geq 50\% \) tumor cells) was observed in 413 (81\%) patients. Combination endocrine therapy was superior to CMF in patients with high p27\textsuperscript{Kip1} expression but not in those with low p27\textsuperscript{Kip1} expression. In patients with high p27\textsuperscript{Kip1} expression, adjusted relative risks for relapse and death after combination endocrine treatment as compared with CMF were 0.52 (95\% confidence interval [CI] = 0.32-0.83; \( P = 0.006 \)) and 0.51 (95\% CI = 0.21-1.25; \( P = 0.14 \)), respectively. In patients with low p27\textsuperscript{Kip1} expression, the corresponding relative risks were 1.1 (95\% CI = 0.47-2.6; \( P = 0.82 \)) and 0.99 (95\% CI = 0.29-3.36; \( P = 0.99 \)), respectively. Tests for interaction between treatment and p27\textsuperscript{Kip1} expression were statistically significant only for relapse-free survival (\( P = 0.04 \)) but not for overall survival (\( P = 0.24 \)). Our results suggest that p27\textsuperscript{Kip1} may be a useful marker for the selection of premenopausal women with early-stage hormone receptor-positive breast cancer for adjuvant combination endocrine therapy but this requires further confirmation by prospective studies.

Associated Presentation(s):

1. Predictive value of p27\textsuperscript{KIP1} expression in premenopausal women with early-stage hormone receptor-positive breast cancer  
Meeting: 2003 ASCO Annual Meeting  
Presenter: Martin Filipits  
Session: Role of Molecular and Genetic Markers in Breast Cancer Treatment Decisions
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   Meeting: 2003 ASCO Annual Meeting  Abstract No: 7  First Author: M. Dowsett  
   Category: Breast Cancer - Local-Regional and Adjuvant Therapy - Adjuvant Therapy

2. Expression of Cox2, aromatase, HER-2/neu and their correlation with the long-term outcome of 930 stage I-III breast cancer (BrCa) patients. Results from the British Columbia (BC) Tissue Micro-Array Project (BCTMAP).
   
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   Category: Tumor Biology - Molecular Diagnostics and Staging

   
   Meeting: 2010 ASCO Annual Meeting  Abstract No: e18038  First Author: R. Pirker  
   Category: Lung Cancer - Metastatic - Metastatic

3. Cyclin D1 expression in breast cancer patients and tamoxifen therapy.
   
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Meeting: 2007 ASCO Annual Meeting
Presenter: Martin Filipits, PhD
Session: Breast Cancer - Local-Regional and Adjuvant Therapy (Poster Discussion Session)

3. Predictive value of p27KIP1 expression in premenopausal women with early-stage hormone receptor-positive breast cancer

Meeting: 2003 ASCO Annual Meeting
Presenter: Martin Filipits, PhD
Session: Role of Molecular and Genetic Markers in Breast Cancer Treatment Decisions (Integrated Education Session)

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