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Titel des Beitrags: Expression analysis of heat shock protein 90 (HSP90) and Her2 in colon carcinoma.

Abstract: The molecular chaperone heat shock protein 90 (HSP90) plays an important role in several types of tumors also participating in the modulation of the activity of receptor tyrosine kinases activity such as members of the Her family. We evaluated the significance of HSP90 and Her2 expression in colon cancer. HSP90 and Her2 expression was determined by immunohistochemistry and by fluorescence in situ hybridization (FISH) on 355 primary resected colon carcinomas. Results were correlated with pathologic features (Union for International Cancer Control (UICC) pTNM category, tumor localisation, tumor differentiation), additional molecular genetic characteristics (BRAF, KRAS mutational status, mismatch repair genes (MMR)), and survival. HSP90 immunoreactivity was observed in various degrees. Fifty-one cases (14 %) were positive for Her2 (score 2+ and 3+) with 16/43 cases with Her2 2+ staining pattern showing amplification of Her2 determined by FISH. There was a significant correlation between high HSP90 expression and Her2 overexpression (p = 0.011). High HSP90 expression was associated with earlier tumor stages (p = 0.019), absence of lymph node (p = 0.006), and absence of distant metastases (p = 0.001). Patients with high tumoral HSP90 levels had a better survival (p = 0.032), but this was not independent from other prognostic relevant
pathologic parameters. Her2 expression was not associated with any of the investigated histopathological, molecular, or clinical parameters. High HSP90 levels are reflecting lower malignant potential in colon cancer. Her2 positivity can be observed in a small number of cases. Targeting HSP90 and/or Her2 may be an alternative therapeutic approach in colon cancer in a subset of patients.