Proposal for a multifactorial prognostic score that accurately classifies 3 groups of gastric carcinoma patients with different outcomes after neoadjuvant chemotherapy and surgery.

Abstract:
We have developed a multifactorial histopathological prognostic score (PRSC) for patients with gastric cancer treated with neoadjuvant chemotherapy before surgery for the accurate discrimination of patient subgroups with differing outcomes. For patients with gastric cancer who undergo multimodal treatment, the postoperative staging classifications used for nontreated tumors may not accurately predict patient prognosis. We evaluated 428 gastric carcinoma specimens after a cisplatin-based chemotherapy. The factors for the Union for International Cancer Control/American Joint Committee on Cancer (UICC/AJCC) ypT-category, ypN-category, and histopathological tumor regression were assigned a value from 1 to 3 as follows: ypT0 to 2 = 1 point; ypT3 = 2 points; ypT4 = 3 points; ypN0 = 1 point; ypN1 to 2 = 2 points; ypN3a to 3b = 3 points; less than 10% residual tumor per tumor bed = 1 point; 10% to 50% residual tumor per tumor bed = 2 points; and greater than 50% residual tumor per tumor bed = 3 points. A 3-tiered PRSC based on the sum value was established (group A: 3-4 points; group B: 5-7 points; group C: 8-9 points) and was found to correlate with patient prognosis. The PRSC showed a clear discrimination of 3 significantly different prognostic groups (group A: 76 patients; group B: 210 patients;
group C: 142 patients; P< 0.001). In multivariate analyses, including the completeness of resection, tumor diameter, lymphatic vessel invasion, tumor grading, and Lauren classification, the PRSC was the only independent prognostic factor for overall survival (hazard ratio [HR] = 2.03; 95% confidence intervals [CI], 1.49-2.78; P< 0.001). It was slightly superior to the UICC/AJCC staging system (HR = 1.66; 95% CI, 1.20-2.27; P = 0.002) when analyzed with tumor regression as an additional independent factor (HR = 1.27; 95% CI, 1.01-1.62; P = 0.044) included in the analysis.: The proposed PRSC reveals the most accurate prediction of survival for patients with gastric carcinoma after neoadjuvant chemotherapy followed by surgery. The PRSC clearly identifies 3 subgroups with different prognoses and may be helpful for therapeutic decisions.