Effects of Tumor Marker Regression Load Score on Long-term Prognosis of Gastric Cancer Patients Undergoing Radical Surgery after Neoadjuvant Chemotherapy

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INTRODUCTION & AIM

The effects of the dynamics of serum tumor markers (CA72-4, CEA, CA19-9, CA125 and AFP) before and after neoadjuvant chemotherapy (NACT) on the prognosis of gastric cancer(GC) patients remain unclear.

METHOD

Data from 334 patients who underwent NACT followed by radical gastrectomy between January 2016 and December 2021 were included. Tumor marker regression load (ΔTMRL) indicator, including ΔCA72-4, ΔCEA, ΔCA19-9, ΔCA125, and ΔAFP, is defined as [(postNACT marker– preNACT marker) / preNACT marker]. Tumor marker regression load score (TMRLS) consists of ΔCA72-4, ΔCEA and ΔCA125. The predictive performance of the nomogram-TMRLS was evaluated using the area under the receiver operating characteristic(ROC) curve(AUC), decision curve analysis(DCA), and C-index.

RESULTS & DISCUSSION

Patients were divided into two groups, TMRLS-low and TMRLS-high, determined by R package maxstat. Survival analysis revealed a higher 3-year overall survival(OS) in the TMRLS-low than in the TMRLS-high group(69.8% vs 34.8%; $P<0.001$). The TMRLS-high group who received postoperative adjuvant chemotherapy(AC) showed a significantly higher 3-year OS rate than those who did not(52.3% vs 8.3%; $P=0.020$). Multivariate COX regression analysis indicated that TMRLS was an independent prognostic factor for OS. A nomogram for predicting OS based on TMRLS showed a significantly higher C-index and AUC than the ypTNM stage(C-index, 0.794 vs 0.697; $P<0.001$; AUC, 0.827 vs 0.678; $P<0.001$).
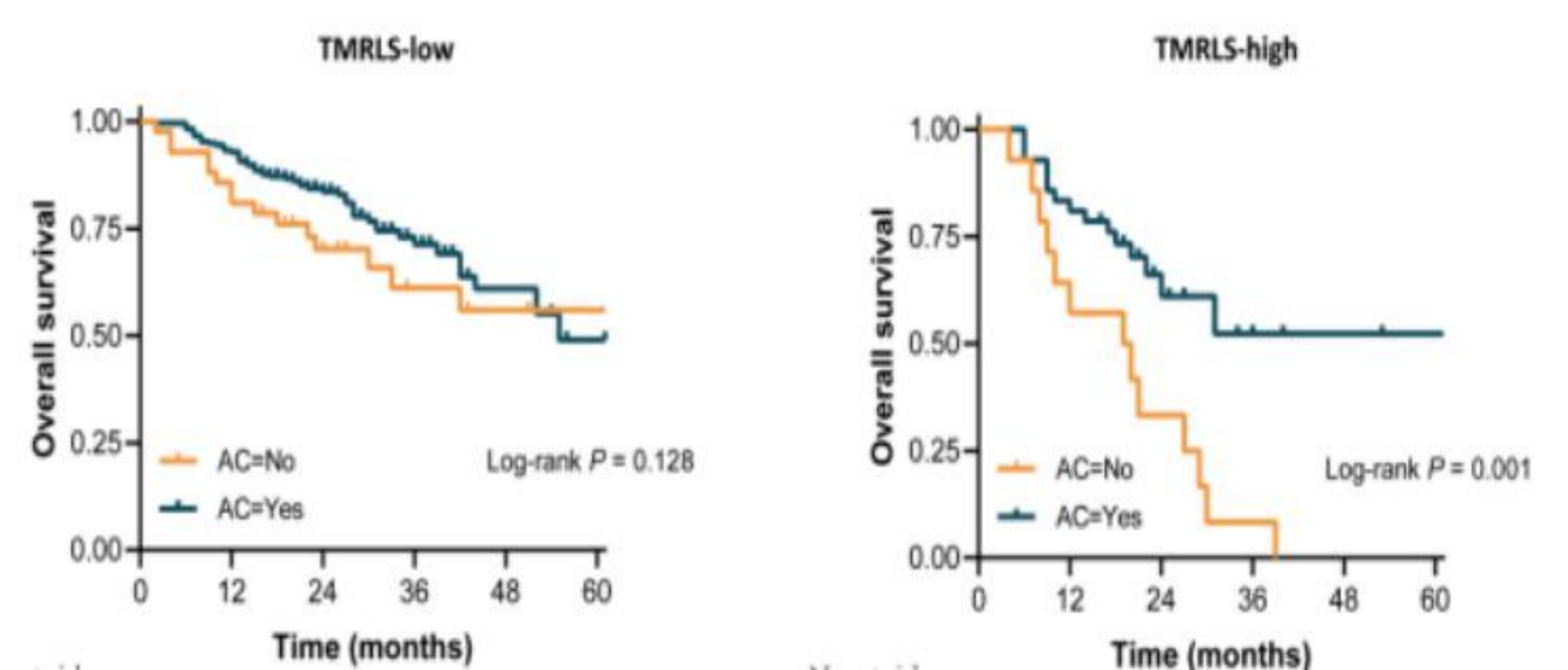
CONCLUSION

TMRLS is a novel independent prognostic factor for GC who underwent NACT and a radical gastrectomy. Furthermore, the TMRLS-high group, who received postoperative AC, may achieve better survival outcomes. Notably, the predictive performance of the nomogram-TMRLS significantly outperformed that of the ypTNM stage.

FUTURE WORK / REFERENCES

The results of this study warrant RCTs to evaluate the true benefit of AC in this setting to make evident based recommendations.