Effect of preoperative tumour under-staging on the long-term survival of patients undergoing radical gastrectomy for gastric cancer

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Methods

Clinicopathological data of 2,346 patients who underwent RGGC were retrospectively analysed. The preoperative tumour-lymph node-metastasis (TNM) under-staging group (uTNM) comprised patients who had earlier preoperative TNM than postoperative TNM, and the no preoperative under-staging group (nTNM) comprised the remaining patients.

Results

Among the 2,346 patients, the average age was 61.0 ± 11.2 years (range, 12–91 years); BMI, 22.0 ± 3.0 kg/m² (range, 13.7–37.3 kg/m²); and tumour size, 48.2 ± 26.8 mm (range, 2–180 mm). There were 1,031 cases (44.0%) in the uTNM group and 1,315 cases (56.0%) in the nTNM group.

Clinicopathological characteristics

Survival analysis

Figure 1: Distribution of preoperative staging deviation of the tumour. a: Distribution of preoperative TNM staging deviation of the tumour. b: Distribution of preoperative T staging deviation of the tumour. c: Distribution of preoperative N staging deviation of the tumour.

Figure 2: Overall survival curve of patients with preoperative TNM under-staging and those with no TNM under-staging in the pathological T stratification. a: OS curve of patients with preoperative TNM under-staging and those with no TNM under-staging in the pathological T3 patients. b: OS curve of patients with preoperative TNM under-staging and those with no TNM under-staging in the pathological T2 patients. c: OS curve of patients with preoperative TNM under-staging and those with no TNM under-staging in the pathological T1 patients.

Figure 3: Overall survival (OS) curve of patients with preoperative TNM under-staging and those with no TNM under-staging in the pathological N stratification. a: OS curve of patients with preoperative TNM under-staging and those with no TNM under-staging in the pathological N0 patients. b: OS curve of patients with preoperative TNM under-staging and those with no TNM under-staging in the pathological N1 patients. c: OS curve of patients with preoperative TNM under-staging and those with no TNM under-staging in the pathological N2 patients. d: OS curve of patients with preoperative TNM under-staging and those with no TNM under-staging in the pathological N3 patients.

Cox regression analysis of OS among all patients

Multivariate Cox prognostic analysis revealed that, with the exception of age, BMI, tumour size, pT, pN, gastronomy method, Charlson scores and lymph node noncompliance rates independently affected patients' OS. Preoperative tumour staging assessment deviation also independently affected patients' overall 5-year survival after surgery (P < 0.05).

Table. Analysis of surgical and pathological factors of patients with preoperative TNM under-staging

Logistic univariate and multivariate analyses revealed that a high BMI, tumour size < 2 cm, early gross typing under gastroscopy, and differentiated tumours in the upper stomach were independent risk factors of preoperative TNM tumour under-staging (P < 0.05).

Conclusions

Underestimated tumour staging is not rare, which possibly results in inadequate LND and affects the long-term survival for patients undergoing RGGC. D2 LND should be carefully performed in patients who are predisposed to this underestimation.

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This study aimed to evaluate the effect of preoperative tumour staging deviation (PTSD) on the long-term survival of patients undergoing radical gastrectomy for gastric cancer (RGGC).

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No conflict of interest exists in any authors.