Background: The outcome of gastric cancer patients with peritoneal metastasis remains poor. We treated these patients with intraperitoneal and intravenous administration of paclitaxel plus oral tegafur/gimeracil/oteracil (S-1), followed by gastrectomy in responders. However, it remains to be determined whether gastrectomy contributes significantly to the survival benefit in good responders. It is also unclear how and when gastrectomy should be performed. Therefore, reliable biomarkers are urgently needed to predict the outcome of gastrectomy. Herein, we evaluated the clinical significance of carcinoembryonic antigen (CEA) mRNA levels in peritoneal lavage as a biomarker for the indication of conversion gastrectomy.

Methods: The peritoneal lavage of 68 patients who received the above regimen as induction chemotherapy was repeatedly collected via intraperitoneal access ports. Gastrectomy was considered when improvement of peritoneal metastasis was confirmed by a second laparoscopic examination with negative peritoneal cytology. CEA and porphobilinogen deaminase (PRGD) mRNAs were chronologically quantified using the transcription reverse-transcription concerted reaction method. The CEA mRNA Index (CmRI) was calculated as CEA mRNA/PRGD mRNA x 10,000.

Results: Thirty-nine patients received gastrectomy and 29 patients did not (median survival time (MST): 27.8 vs. 10.7 months, P < 0.001). In the gastrectomy-positive group, the outcome largely differed according the CmRI immediately prior to surgery. Patients (n = 20) who had a preoperative CmRI value of <100 were associated with a significantly longer MST compared to patients (n = 19) who had a preoperative CmRI value of >100 (41.8 vs. 20.8 months, P < 0.001). A preoperative CmRI value of <100 was an independent predictor of survival for gastrectomy-positive patients in the multivariate analysis.

Conclusions: The CmRI reflects the response of peritoneal metastases to induction intraperitoneal chemotherapy. It may be a useful biomarker to determine gastrectomy in gastric cancer patients with peritoneal metastasis.

Legal entity responsible for the study: Hironori Yamaguchi

Funding: Grant-in-Aid for Scientific Research from the Japan Society for the Promotion of Science

Disclosure: All authors have declared no conflicts of interest.

656P Peritoneal lavage CEA mRNA levels predict conversion gastrectomy outcomes after induction chemotherapy in gastric cancer patients with peritoneal metastasis

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