

Tumor-positive peritoneal cytology in patients with gastric cancer is associated with poor outcome: A nationwide study

Karen Van Der Sluis¹, Steven N Taylor², Liudmila L Kodach³, Jolanda M van Dieren⁴, Ignace H J T de Hingh⁵, Bas P L Wijnhoven⁶, Rob H A Verhoeven⁷, Marieke A Vollebergh⁴, Johanna W van Sandick²

1. The Netherlands Cancer Institute, Department of Surgical Oncology, Amsterdam, the Netherlands. Electronic address: k.vd.sluis@nki.nl.
2. The Netherlands Cancer Institute, Department of Surgical Oncology, Amsterdam, the Netherlands.
3. The Netherlands Cancer Institute, Department of Pathology, Amsterdam, the Netherlands.
4. The Netherlands Cancer Institute, Department of Gastrointestinal Oncology, Amsterdam, the Netherlands.
5. Catharina Hospital, Department of Surgery, Eindhoven, the Netherlands.
6. Erasmus Medical Centre, Department of Surgery, Rotterdam, the Netherlands.
7. Netherlands Comprehensive Cancer Organization (IKNL), Department of Research & Development, Utrecht, the Netherlands; Amsterdam UMC location University of Amsterdam, Medical Oncology, Meibergdreef 9, Amsterdam, the Netherlands; Cancer Center Amsterdam, Cancer Treatment and Quality of Life, Amsterdam, the Netherlands.

Background: The clinical significance of tumor-positive peritoneal cytology (CYT+) in gastric cancer (GC) patients is unclear. This nationwide cohort study aimed to i) assess the frequency of cytological analysis at staging laparoscopy; ii) determine the prevalence of CYT+GC; and iii) compare overall survival (OS) in CYT+ patients versus those with (PM+) and those without (PM-) macroscopic peritoneal disease.

Methods: All patients diagnosed with cT1-4, cN0-2 and M0 or synchronous PM GC between 2016-2021 were identified in the Netherlands Cancer Registry database and linked to the nationwide pathology database.

Results: A total of 4397 patients was included, of which 40 % underwent cytological assessment following staging laparoscopy (863/1745). The prevalence of CYT+ was 8 %. A total of 69 patients had CYT+(1.6 %), 789 (17.9 %) had PM+ and 3539 (80.5 %) had PM- disease. Hazard ratio for OS in CYT+ versus PM+ was 0.86 (95 %CI 0.64-1.17, p-value=0.338), and in PM- versus PM+ 0.43 (95 %CI 0.38-0.49, p-value<0.001). No survival difference was found between systemic chemotherapy versus surgical resection in CYT+ patients.

Discussion: In this nationwide study, OS for gastric cancer patients with CYT+ was equally unfavorable as for those with PM+ and significantly worse as compared to those with PM-. The optimal treatment strategy has yet to be established.