Meet the Professor

Professor Emel Canbay: treatment of peritoneal metastasis of gastric cancer

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Prof. Emel Canbay (*Figure 1*) is a general surgeon with expertise in breast and gastrointestinal surgery, minimally invasive laparoscopic surgery and cytoreductive surgery with peritonectomy procedures for peritoneal metastases of gastrointestinal cancers as gastric cancer, appendiceal neoplasms and colorectal cancers and gynecologic cancers. She also performs intraperitoneal chemotherapy applications, such as neoadjuvant intraperitoneal chemotherapy, laparascopic hyperthermic intraperitoneal chemotherapy, hyperthermic intraoperative intraperitoneal chemotherapy (HIPEC) and early postoperative intraperitoneal chemotherapy applications. Prof. Canbay has been educated and underwent advanced fellowships in Italy, United Kingdom, Japan, Korea and United States to improve her technical and scientific skills. Prof. Canbay has published numerous articles, such as "Multidisciplinary approach for the treatment of gastric cancer" published in book "*Gastric Cancer*" in Chinese and English. Gastric cancer is important for young and educating surgeons to have an idea in management of peritoneal metastases.

Translational Gastrointestinal Cancer (*TGC*) editor met Prof. Canbay in the 10th Chinese Gastric Cancer Congress (CGCC), where she gave an excellent speech on "Peritoneal metastasis of gastric cancer". We are honoured to have an interview with Prof. Canbay to share her opinion on the treatment of the treatment of peritoneal metastasis of gastric cancer.

Figure 1 Professor Emel Canbay, NPO HIPEC ISTANBUL, Turkey.

TGC: Could you give us a brief introduction of the peritoneal metastasis of gastric cancer?

Prof. Canbay: The peritoneal metastasis occurs as a natural history of gastric cancer. Adominal cavity divides into nine equal region and exploration performs in these regions. Peritoneal free cancer cells occur due to exfoliation from primary origin.These free cells can penetrate to the peritoneal surface and move to submesothelial tissue through the stomata. Peritoneal and distant metastases occur when the tumour cells reach to the submesothelial vessels, lymphatics or other structures. And once the peritoneal metastasis occurs, the survival time will dramatically diminish-down to 3 months. If you treat the patients with systemic therapy, you could only prolong their survival up to 9 months. We also aim to protect local regional recurrences in patients with advanced gastric cancer.

The history of management of peritoneal metastasis was initiated in patients with pseudomyxoma peritonei (PMP), then peritoneal metastases of colorectal cancers, peritoneal mesothelioma were treated with cytoreductive surgery accompanying peritonectomy procedures and HIPEC. In late 1990s, cytoreductive surgery combined with heated intraoperative chemotherapy (HIPEC) has been initiated to use in management of peritoneal metastasis originating from gastric cancer. We firstly started to use mitomycine in combination with cisplatin after completing the resection

of tumoral tissue for the patients. In 2011, we started to use bidirectional chemotherapy in neoadjuvant setting in these patients with my teacher Prof. Yutaka Yonemura. Now, I also apply bidirectional systemic chemotherapy to these patients in Istanbul in order to decrease tumour burden or control ascites. We aim to achieve downstaging in these patients. Response evaluation to the systemic and intraperitoneal chemotherapy is made after four to six cycles. We usually perform combined chemotherapy procedures in these patients, and if these patients can go downstaging and have no tumours, we could perform the cytoreductive surgery and heated intraoperative intraperitoneal chemotherapy to prolong their survival time. If the patients with peritoneal metastasis of gastric cancer have peritoneal cancer index is limited to 6-10, or if they have limited disease penetrated to the peritoneum, they could even cure with this technique. Median over all survival time is up to 15 months, and almost 10% of patients with peritoneal metastasis of gastric cancer could survive up to 5 years with this combined technique. In the future, we need to improve our knowledge with further clinical studies and molecular studies to select our patients.

The peritoneal cancer index is very important. If the peritoneal cancer index is less than 6, these patients could get much more benefit from surgery and heated intraperitoneal chemotherapy than any other conventional treatments. But if the peritoneal cancer index is more than 6, such as 7 or more, you may not obtain any potential benefit for overall survival. In this situation, intraperitoneal chemotherapy combined with systemic chemotherapy would be a better option. But when peritoneal cancer index is less than 6, these patients are very good candidate for cytoreductive surgery with peritonectomy procedures and HIPEC. The surgeon has to be aware of which patient has to go to surgery and which patient has to do the peritoneal systemic chemotherapy in palliative intent.

The patient safety is very important, so we have to be very careful to select patients. The peritoneal cancer index and completeness of cytoreduction seem to be very essential during this procedure. Selection of patients is very important to achieve completed cytoreductive surgery and heated intraperitoneal chemotherapy and prolong survival in this group of patients. Completed cytoreduction and low tumour burden are essential to prolong survival in these patients.

TGC: As the peritoneal metastasis from gastric cancer is often undetectable by routine imaging studies. In your opinion, what could do to improve the diagnosis and management of this disease?

Prof. Canbay: This is a very important question. As conventional imaging techniques can not detect these diseases, so we have to make diagnostic laparoscopy. Diagnostic laparoscopy and washing cytology are essential to evaluate inside of the abdomen. Without doing these, you can never be sure whether your patient has peritoneal metastasis from gastric cancer. Even your patient has an early-stage. It is very difficult to detect peritoneal metastases, so we have to use washing cytology methods routinely and the diagnostic laparoscopy prior to our surgery.

TGC: Among various treatments for peritoneal metastasis of gastric cancer, what is your view on the surgical treatment? Such as its function, advantage and disadvantage.

Prof. Canbay: Surgical treatment is an effective means for patients with peritoneal metastasis of gastric cancer. The peritoneal cancer index, the completeness of cytoreduction and the patient's performance status definitely are significant prognostic factors. On the other hand, the morbidity and mortality are quite high. And also the molecular and pharmacokinetic studies need to be performed before we make a final decision if the surgical treatment could be done.

We recently perform laparascopic HIPEC to dowstage the disease and ascite control. And, intraperitoneal port is also placed at the same operation. Then, bidirectional systemic chemotherapy is used in neoadjuvant setting. Response evaluation is made in 4-6 cycles of chemotherapy. If the peritoneal cancer index is between 6 to 10, cytoreductive surgery and hyperthermic intraperitoneal chemotherapy can be performed in the treatment of these patients. If the peritoneal cancer index is more than 10 bidirectional chemotherapy can be carried on up to 8 cycles.

TGC: In the future, what is the major challenge of the treatments of peritoneal metastasis from gastric cancer?

Prof. Canbay: We need to define the effectiveness of hyperthermic intraperitoneal chemotherapy alone and cytoreductive surgery with hyperthermiac intraperitoneal chemotherapy in peritoneal metastasis. Hyperthermic intraperitoneal chemotherapy followed by bidirectional

chemotherapy seems to be new approach in management of peritoneal metastases. This combined technique is used to control ascites and the downstaging tumor, which could be a major challenge in the future. It is also an important thing to do cytoreductive surgery and HIPEC, which are essential to manage gastric cancer cases even in early stages. Using these techniques, the patients will be protected the risk to develop peritoneal metastasis, which is very crucial. We recently publish a book named 'Peritoneal Surface Malignancies: A curative approach' by Springer. We aimed to give brief information regarding these techniques and outcomes of this treatment in peritoneal metastases originated from intraabdominal tumors. I hope that it could be useful in surgeons' daily practice.

Finally, I would like to express my gratitudes to the Editor and all staff of *TGC* for this interview. I would be very happy collaborate with my Chinese colleagues in future.

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TGC: Thank you!

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Footnote

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(Science Editor: Silvia L. Zhou, TGC, tgc@amepc.org)

