ABCs of Gastric Cancer

Text and photo by Dr Aung Myint Oo @ Ye Jian Guo

In line with Stomach Cancer Awareness Month, SMA organised a webinar titled "ABCs of Gastric Cancer" for primary healthcare professionals, supported by Bristol Myers Squibb, on 7 November 2020. Dr Stephen Tsao, senior consultant gastroenterologist from Tan Tock Seng Hospital (TTSH) commenced with his topic on endoscopic diagnosis and management of early gastric cancer. I shared next on the surgical management of gastric cancer. Dr Choo Su Pin, senior consultant oncologist from Curie Oncology, Mount Elizabeth Hospital gave a presentation on immunotherapy for gastric cancer and Ms Serene Chew, senior dietician from TTSH touched on nutrition after gastrectomy. Presented here are some general information on gastric cancer for fellow colleagues' reference.

Incidence

Stomach cancer is the fifth most common cancer and third most common cancer death globally. In 2018, the World Health Organization reported a total of 1,033,701 (5.7%) cases of gastric cancer and 782,685 (8.2%) deaths from gastric cancer.[1]

According to the Singapore Cancer Registry, stomach cancer was the seventh most common cancer in men and ninth in women from 2013 to 2017. However, it ranked fifth for cancer-related deaths in men and sixth in women. Every year, approximately 500 patients are diagnosed with stomach cancer and about 300 patients die of it in Singapore.[2]

Risks factors

Among the risk factors identified, the most important ones are *H. pylori* infection and family history of gastric cancer. Chronic gastritis caused by *H. pylori* infection, pernicious anaemia and possibly high salt intake can progress into atrophic gastritis, intestinal metaplasia, dysplasia and eventually the intestinal-type adenocarcinoma. Exposure to N-nitroso compounds found in our diet, preserved food, tobacco smoke and other environmental factors can also cause gastric cancer, aside from smoking, alcohol consumption and obesity. Even though most gastric cancers are sporadic, 10% have family history. Only 1% to 3% of global gastric cancers are truly hereditary (familial), and such gastric cancer accounts comprise at least three major syndromes: hereditary diffuse gastric cancer (HDGC), gastric adenocarcinoma and proximal polyposis of the stomach (GAPPS), and familial intestinal gastric cancer (FIGC). Among the three sydromes, only HDGC is genetically linked to the germline mutations in the CDH1 gene encoding E-cadherin. Post gastric resection and bile reflux, especially after Billroth II anastomosis, is also one of the risk factors of gastric adenocarcinoma.[3] In Singapore, ethnic Chinese males above 50 years of age are considered to be in the higher risk group.

Presenting symptoms

Early gastric cancer patients might have very mild or vague symptoms, such as epigastric discomfort and dyspepsia, or are asymptomatic. Thus, gastric cancers are often diagnosed at the advanced stages, especially in countries without a gastric cancer screening programme. The mild or vague symptoms are usually similar to those of benign gastric conditions and patients sometimes self-medicate with gastric medications before consulting doctors. Advanced stage gastric cancer patients might present with persistent symptoms, such as epigastric pain, dysphagia, loss of appetite or weight, passing black tarry stools, vomiting of blood, coffee ground vomiting and anaemia. Late stage, metastatic disease might present with jaundice and/or abdominal distension due to malignant ascites and cachexia.

Diagnosis and staging

The most definitive way to diagnose gastric cancer is by conducting histological examination of the tumour tissues acquired through upper endoscopic examination and biopsies. Endoscopic examinations can also give important information on the location, size and stage of the tumour to guide on treatment strategies. With the aid of advanced technology such as image-enhanced endoscopy, endoscopists can identifiy the very early stages of gastric cancer including those arising from the metaplasia or dysplasia.

A new blood test known as GASTROClear is the world's first approved microRNA test to diagnose early gastric cancer. It is a qPCR-based diagnostic test kit that measures biomarkers linked to gastric cancer and calculates a cancer risk score using a proprietary algorithm that has been clinically validated.[4] According to a study published in 2020, it can detect 87.5% of Stage I gastric cancers and 89.5% of Stage II gastric cancers.[5]

The Singapore Health Sciences Authority approved the GASTROClear test in May 2020 and it has since been progressively rolled out in public hospitals and some private GP and specialist clinics for pre-screening of gastric cancer.[6] The cost of each test is around S$200, making it a cost-effective risk assessment tool for gastric cancer before endoscopy.[5,6]

Once the diagnosis is confirmed by endoscopic and histological examinations, the pretreatment Tumour, Node and Metastasis (TNM) staging of the cancer can be achieved by endoscopic ultrasound (EUS), CT scan, integrated positron emission tomography (PET)/CT scan, staging

laparoscopy, and peritoneal washing cytology, when clinically indicated. The pretreatment staging evaluation of gastric cancer is an important step to guide clinicians to the most appropriate treatment for the patients.

Management

Like other cancers, management of gastric cancer is multidisciplinary. Suitable patients with very early cancers and without evidence of lymph node metastasis, including those who are medically unfit for surgery, can undergo endoscopic resection. For patients not suitable for endoscopic resection, curative surgery with radical lymph node dissections can be considered. For advanced non-metastatic cancers, the management strategies will be either surgery with radical lymphadenectomy, followed by adjuvant chemotherapy or perioperative chemotherapy/perioperative chemoradiation with surgery and radical lymphadenectomy. Medically fit patients with unresectable advanced locoregional diseases need to undergo systemic chemotherapy or chemoradiation, while those patients with Stage IV metastatic diseases will be recommended for palliative management, including palliative systemic chemotherapy with or without target therapy. The best support care will be recommended to patients who are medically unfit for both surgery and systemic treatment.[7,8,9]

In Singapore, most institutions follow the Japanese Gastric Cancer Guidelines algorithm and thus, medically fit and operable patients will undergo upfront surgery followed by adjuvant chemo-therapy.[7] Perioperative chemotherapy or neoadjuvant chemotherapy are reserved for patients with borderline resectability in order to downstage the tumours to achieve the R0 resection with curable intent.

Recent studies from Japan, Korea and China showed that the laparoscopic radical gastrectomy is feasible, safe and non-inferior oncologically to the open radical gastrectomy for gastric cancer in experienced hands. Both short-term and long-term clincial outcomes after minimally invasive surgical treatment of gastric cancers are quite promising.[10]

Prognosis

The prognosis of gastric cancer depends on the stage. With the appropriate treatment, early stage gastric cancer can be cured, with the five-year survival rate for Stage I cancer as high as 90%. Unfortunately, most gastric cancers are diagnosed late and in Singapore, 58.2% of cases were diagnosed at Stages III to IV in 2017. The five-year survival rate for Stage IV diseases is as low as 5%. The age standardised five-year net survival (2010-2014) of gastric cancer in Singapore was comparable to those in Malaysia (Penang), Australia and the US, but lower than those in Japan and South Korea.[2]

Conclusion

Gastric cancer is one of the leading causes of cancer deaths in Singapore. Early stage gastric cancers can be asymptomatic, or present with mild or vague gastric discomfort symptoms. Patients might not seek timely medical advice and thus might be diagnosed only at an advanced stage. Appropriate multimodality treatment of gastric cancer, including gastrectomy and radical lymphadenectomy together with systemic chemotherapy, can be curative. The earlier the stage of the cancer, the better the prognosis and clincal outcomes. Suitable very early stage gastric cancer can be treated with endoscopic resection. The evidence of minimally invasive/ laparoscopic radical gastrectomies is emerging. Both their short- and long-term clinical as well as oncological outcomes are desirable with some advantages and non-inferior in comparison to the conventional open approach. ◆

References

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Legend

1. Dr Aung, second from left, performing laparoscopic gastrectomy using 3D camera system

Dr Aung is a senior consultant surgeon in the Department of General Surgery and a Deputy Chief Medical Informatics Officer in Tan Tock Seng Hospital, Singapore. He is also Vice Chairman of the Chapter of General Surgeons, College of Surgeons, Academy of Medicine, Singapore.