Editorial

A current view of gastric cancer in China

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Abstract: Gastric cancer is a heterogeneous disease with large variations across geographical regions. Although the global incidence of gastric cancer is declining, it remains highly prevalent in Asia as compared to the West. China is one of the countries with the highest incidence of gastric cancer, and accounts for over 40% of all new gastric cancer cases in the world. Gastric cancer is the third leading cause of cancer mortality in China. Gastric cancer in Chinese patients is different from that occurring in the West, and is a significant health burden. Moreover, there is currently no internationally accepted standard treatment regimen and clinical practice varies widely across countries. With the development of medical technology and wide application of more and more novel technologies, evidence-based approaches in combination with the strengths of various treatments will be the key to multidisciplinary management of gastric cancer for ultimately improving the outcomes and quality of life of these patients.

Key Words: Gastric cancer; surgery; chemotherapy; radiotherapy; quality of life

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Introduction

Gastric cancer is a heterogeneous disease with large variations across geographical regions (1). Although the global incidence of gastric cancer is declining, it remains highly prevalent in Asia as compared to the West (2,3). China is one of the countries with the highest incidence of gastric cancer, and accounts for over 40% of all new gastric cancer cases in the world (4,5). Gastric cancer is the third leading cause of cancer mortality in China (6,7).

Epidemiology

In China, the latest data about national statistics of incidence and mortality on cancer was published in the beginning of this century. The incidence and mortality of cancer was derived from population-based cancer registries. In a survey of Chinese cancer registration practices in 2002, 48 population-based cancer registries were identified. They covered 5.7% of the national population. An estimate was made using data on incidence and mortality from registries. It is estimated that the five leading cancers in terms of incidence in the year 2000 were lung, stomach, liver, esophagus, and colon-rectum for men; and breast, stomach, lung, liver, and esophagus for women. In the year 2005, the second and third ranks are reversed in both sexes; the others are the same as in 2000. The total estimated number of new cancer cases increased by 11.7% in men (from 1.3 to 1.4 million) and 19.3% in women

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(from 0.8 to 1 million). Only cancers of the esophagus (for both sexes) and stomach (in male) showed a decline in the number of cases during these 5 years (8).

For gastric cancer, age-standardized incidence rates were 41.9 (per 100,000) for male and 19.5 for female in the year 2000. The age-standardized incidence rates were 37.1 for the male and 17.4 for the female in 2005. The age-standardized mortality rates were 32.7 for male and 15 for female in the year 2000. It is estimated to be 28.8 for the male and 13.3 for the female in 2005. In 2005, 0.3 million deaths and 0.4 million new cases from gastric cancer ranked the third most common cancer (9). The age-standardized mortality rates of stomach cancer were 40.8 and 18.6 for males and females, making stomach cancer the leading cause of cancer death in the 1990s (10). There is a remarkable decline in gastric cancer mortality in the entire population during the last two decades. These declines were largely due to the improvements in the social-economic environment, lifestyle, nutrition, education and health care system after economic reforms started three decades ago. Nevertheless, gastric cancer remains a significant cancer burden currently and should be one of the key issues in cancer prevention and control strategy in China.

Screening and early gastric cancer

There is no nationwide screening program on gastric cancer. Early detection of gastric cancer therefore relies on opportunistic screening only (11). Now, endoscopy is widely available in urban and rural areas. The same as the western countries, most gastric cancer was diagnosed at advanced stage. Early gastric cancer rate is increasing gradually, and now the number is about 10% (12). Early gastric cancer has excellent outcomes from surgery, with a 5-year survival rate higher than 90%. In China, most surgeons consider D2 lymphadenectomy the standard and optimal surgical procedure for patients with early gastric cancer.

Advanced gastric cancer

Surgery is the crucial treatment for gastric cancer. Complete resection with adequate margin is widely considered as a standard. Most of treatment opinions in China were adopted from Japan. The margin requires >5 cm from the gross tumor. There is still controversy worldwide about whether D1 or D2 lymphadenectomy for gastric cancer is better. The western investigators have not found a survival advantage when extensive lymphadenectomy compared with a D1 resection. The Dutch Gastric Cancer Group Trial and British Cooperative Trial failed to demonstrate a survival benefit for D2 over D1 lymphadenectomy (13,14). In addition, the D2 dissection was associated with increased postoperative morbidity and mortality. Based on these results, D1 lymphadenectomy has been performed routinely for gastric cancer in Western countries. The higher morbidity and mortality rates of D2 lymphadenectomy may be due to the learning curve and higher body mass index of patient in Western countries. Conversely, in Asian countries including China, gastrectomy plus D2 lymphadenectomy is the standard treatment for curable gastric cancer.

In China, while the majority of gastric cancer occurs in the distal part of the stomach, the incidence of proximal gastric cancers is increasing. For a curative gastrectomy, it is necessary to dissect the lymph nodes in the splenic hilum and the lymph nodes along the splenic artery. Splenectomy has been recommended to facilitate lymph node dissection. The frequency of metastasis to lymph nodes at the splenic hilum or along the splenic artery ranges from 8-10% (15). Splenectomy was an important risk factor for postoperative morbidity and mortality (16). Splenectomy has not yet shown superiority on survival compared to splenic preservation. Routinely performing splenectomy is not recommended (17). For T3 proximal gastric cancer patients with No. 10 lymph node metastasis, total gastrectomy with splenectomy is recommended (18).

D2 + PALD (para-aortic nodal dissection) was once expected to be more beneficial. Compared with standard D2, D2 + PAND did not have any overall survival benefit. Even though the D2 + PALD can be performed safely by well-trained gastrointestinal surgeons, with an acceptable rate of complications, its survival benefits are not significantly better than those of standardized D2 lymphadenectomy. Therefore, D2 plus PALD is not performed routinely in China (19).

Minimally invasive technologies

Endoscopic mucosal resection (EMR) is suitable to treat early-stage gastric cancers without invasion into submucosa. Compared with conventional resection through open gastrectomy, similar long-term survival and curative effect can be achieved by EMR, preserving a good quality of life. EMR has been routinely recommended for early gastric cancer in Japan. Because of the low incidence of early gastric cancer, its applicability in China is very limited.

Laparoscopic resection is an emerging surgical approach

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with important advantages when compared with open surgical procedures. A few big hospitals in China began to explore the feasibility of this technique in gastric cancer (20,21). The role of this approach in the treatment of gastric cancer requires further investigation in large randomized clinical trials.

Radiation and chemotherapy

Radiation therapy is considered an integral of treatment for gastric cancer in the western hemisphere. In China, it is not recommended routinely. There are two reasons. One is most lesions in China located in distal stomach, radiation is not reasonable approach; the other, D2 lymph node dissection is considered enough for local therapy. Chemotherapy can provide both palliation and improve survival in patients with metastatic disease. In china, most of the active agents such as taxol, docetaxel, irinotecan, oxaliplatin, capecitabine are available in urban areas.

The British medical research council performed the first well powered phase III trial for perioperative chemotherapy (22). The results of the study have established perioperative chemotherapy as a standard care for patients with operable gastric cancer. Preoperative chemotherapy is gradually accepted by physicians. In China, a phase III multi center neoadjuvant chemotherapy clinical trial on locally advanced gastric cancer sponsored by the Ministry of Science and Technology was carried out from 2006. It was the first time that national government sponsored clinical trial on gastric cancer; most of the clinical trials in China were sponsored by the drug companies.

Summary

In the last few decades, there is a notable decline in incidence and mortality rates in gastric cancer in China. Early gastric cancer rates have increased gradually. Although there is discrepancy between rural and urban areas, the treatment of gastric cancer is standardized. EUS and high resolution CT are used for staging. A multidisciplinary treatment decision-making meeting was organized before treatment. The outcome of gastric cancer improved greatly in China. In large hospital center, the 5-year survival of gastric cancer has improved from 40.1% to 57.6% (23-25). There still is considerable distance compared with the data of Japan (26). In view of the fact that most cases are in advanced stage, this is a great achievement. China has the largest population of gastric cancer in the world. It should play a more important role in the control of gastric cancer. In 2008, NCCN guidelines were introduced into China formally. Chinese physicians joined the global clinical trails (27). An increasing number of Chinese physicians are now trained in Japan and the West.

In conclusion, gastric cancer in Chinese patients is different from that occurring in the West, and is a significant health burden. Moreover, there is currently no internationally accepted standard treatment regimen and clinical practice varies widely across countries. With the development of medical technology and wide application of more and more novel technologies, evidence-based approaches in combination with the strengths of various treatments will be the key to multidisciplinary management of gastric cancer for ultimately improving the outcomes and quality of life of these patients.

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