

Original Article**Long-Term Outcome of A Large Series of Gastric Cancer Patients in China**

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ABSTRACT

Objective: The outcome of gastric cancer treatment in China is relatively poor compared with those in Japan and Korea. Relevant factors are not quite clear till now. The aim of this study is to present data on gastric cancer patients from a single high volume cancer center of China and to illuminate relevant factors regarding unsatisfactory outcome.

Methods: A total of 2312 consecutive pathologically proven gastric carcinoma patients were treated in Beijing Cancer Hospital from January 1995 to December 2005. Clinical information including demographic information, tumor characteristics, therapeutic experience and survival was retrieved from the Database specially designed for Gastric Cancer Collaborative Group, Beijing Cancer Hospital.

Results: There were 1633 males and 679 females with a median age of 58.8 years (range 19–89). Merely 181 patients were in the early stage (7.8%). Curative resection was performed in less than 72% of the patients. The number of lymph nodes harvested varied from 0 to 71 (average 9) while the median number of positive lymph node was 2 (0–37). Only in 650 patients the number of lymph nodes harvested was more than 14. At the end of follow-up, 874 patients were still alive while 1132 died. The 1, 2, 5, 10-year overall survival were 68.50%, 51.88%, 36.83%, and 30.49%, respectively. Multivariate analysis demonstrated that TNM stage, tumor location, tumor size, surgery, and vascular invasion were independent prognostic factors.

Conclusion: The outcome of gastric cancer in China is not as good as expected. Early detection and standardized curative resection should be prompted at present to improve the outcome.

Key words: Gastric cancer; Management; Outcome

INTRODUCTION

Gastric cancer is rampant in many countries in the world, especially in Japan, Costa Rica, Peru, Brazil, China, Korea, Chile, and former Soviet Union^[1–2]. Gastric cancer is often diagnosed at its early stage in countries as Japan and Korea where cancer screening is quite prevalent^[3–7]. The

mainstay of armamentarium against gastric cancer proves to be surgery, while multi-modality therapy integrating chemotherapy and radio-therapy is becoming more and more popular in recent years^[8–10].

Generally speaking, the outcomes of gastric cancer patients in Asian countries are better than those in Western countries. The 5 year survival rate is 40%–60% compared to 20%–30% in Western countries. There have been controversies between Japanese and Western scholars about the etiology, histopathology, prevention, and management of gastric cancer for a long time^[11]. The age of onset is approximately ten years younger in Japan, and ethnicity is not observed to be an independent

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prognostic factor according to Japanese viewpoint^[12-14]. Standard D2 dissection is advocated by Japanese scholars while the rate of D2 dissection in Western clinical trials is relatively low^[15, 16].

However, the data were generally from Japan. Though several reports have been issued in domestic journals or conference proceedings, few regarding the outcome of gastric cancer in China were available in English literatures. This study tries to give insight into the result and problematic nature of gastric cancer in China. In this article, we will present the data of 2312 gastric cancer patients treated in a single Chinese cancer center from 1995 to 2005.

MATERIALS AND METHODS

Patients

A total of 2312 consecutive pathologically proven gastric carcinoma patients were treated in Beijing Cancer Hospital from January 1995 to December 2005. The data of these patients were retrieved from the Database specially designed by Beijing Cancer Hospital. The database includes demographic information, tumor characteristics such as tumor size, tumor grade, histology, tumor stage, therapeutic information including details of the surgical intervention. The survival data were obtained from the follow-up group of Beijing Cancer Hospital, as well as direct contact with the patients and or their relatives. Patients with incomplete information were excluded.

Clinical Management

Newly diagnosed gastric cancer patients underwent complete history & physical examination (H&P), complete blood account (CBC), biochemical assays, blood coagulation assay and electrocardiogram (ECG). Patients more than 65 years old or with concomitant pulmonary disease were subject to pulmonary function evaluation. Gastroscopy with biopsy was warranted. Barium meal in proximal gastric cancer was necessary, especially when lower esophagus invasion was suspected. Chest X ray, computed tomography (CT) scan were performed generally to rule out extra-abdominal metastasis and to evaluate the feasibility of surgical resection. A pelvic CT scan or ultrasound was also recommended for women. Endoscopic ultrasound (EUS) was recommended for patients with potential resectable cancer.

Curative resection of gastric cancer together with D2 lymph node dissection was attempted. Patients with early stage gastric cancer might undergo local gastrectomy, subtotal gastrectomy with D1 lymphadenectomy or less. The surgical margins were more than 4 cm proximally and 2 cm or more distally for curative resection. Prophylactic splenectomy and distal pancreatectomy were not performed except for tumor involvement. Resection of involved adjacent organs such as liver, spleen, and colon might be prudently performed in view of curative attempt. Gastrointestinal reconstruction with various procedures might be used in cases of total gastrectomy. When curative resection was impossible, mostly under circumstances as peritoneal metastasis, liver metastasis and major vessel invasion, the alternatives would be palliative resection, gastrointestinal bypass or surgical exploration when massive bleeding or outlet obstruction was present. Palliative resection was defined as removal of gastric tumor with the evidence of residual tumor including peritoneal metastasis, liver metastasis, lung metastasis, and/or lymph node metastasis. Neoadjuvant chemotherapy with oxaliplatin- or paclitaxol-based regimens was carried out in some patients with advanced lesions.

Tumor location, histological type and vascular invasion were recorded as well as histological grade. Pathologic staging was reported according to the TNM staging system (UICC, 1997). Patients with pathological stage II or more advanced were generally subjected to postoperative chemotherapy, with 5-fluorouracil-based regimens for six months, if economically feasible. The patients were followed-up every 3 months for two years and then every 6 months for the next three years, and then annually.

Statistical Analysis

Analyses were performed with SPSS 12.0 for Windows (SPSS Inc., Chicago, IL). $P < 0.05$ (two sided) was considered statistically significant. The χ^2 test or Fisher's exact test was used to compare qualitative variables. Student's *t*-test was used for quantitative variables if they were assumed to follow a normal distribution. Quantitative nonnormal variables were compared by using the Mann-Whitney U-test or the Kruskal-Wallis test. The effect of each prognostic variable was studied in univariate analysis with Kaplan-Meier method. Variables with a P value < 0.05 were considered candidates to enter a multivariate Cox regression model.