

Pretreatment blood neutrophil/lymphocyte ratio is associated with metastasis and predicts survival in patients with pancreatic cancer

Jing Guo, Mengwan Wu, Lihong Guo, Qiang Zuo

Received 1st February 2017
Accepted 13 October 2017
Available online:

Southern medical university, Nanfang hospital, department of oncology, Guangzhou, Guangdong Province, China

Correspondence:

Qiang Zuo, Southern Medical University, Nanfang Hospital, Department of Oncology, 1838, North Guangzhou avenue, Guangzhou 510515, China.
nfyzq@126.com

Le ratio neutrophiles/lymphocytes préthérapeutique est associé au risque métastatique et prédit la survie chez les patients atteints de cancer du pancréas

Keywords

Pancreatic cancer
Neutrophil/lymphocyte ratio (NLR)
Distant metastasis
Overall survival

Summary

Background > The predictive value of systemic inflammatory markers has been explored in various types of cancer. In the present study, we aimed to investigate the association between pretreatment neutrophil/lymphocyte ratio (NLR) and tumor metastasis in pancreatic cancer, and the values of NLR as a prognostic factor of overall survival.

Methods > Clinical and laboratory data from 256 consecutive pancreatic cancer patients were analyzed retrospectively. The NLR was recorded before treatment and analyzed along with clinicopathological characteristics and overall survival of pancreatic cancer patients.

Results > Multivariate analysis revealed that pretreatment NLR (HR: 2.393; 95% CI: 1.326–4.320; $P = 0.004$) was an independent risk factor for distant metastasis. Furthermore, COX regression analysis showed that in addition to pretreatment NLR (HR: 1.871; 95% CI: 1.413–2.477; $P < 0.001$), metastasis and stage were independent prognostic factors.

Conclusion > Pretreatment NLR values were significantly associated with distant metastasis in pancreatic cancer patients. Higher NLR values were detected in metastatic disease and may be an independent prognostic factor of overall survival in pancreatic cancer patients.

Mots clés

Cancer du pancréas
Ratio neutrophiles/
lymphocytes
Métastase
Survie globale

Introduction

Pancreatic cancer is one of the most malignant gastrointestinal cancers, and its incidence continues to rise [1]. As the early diagnosis of pancreatic cancer is difficult, patients are frequently at an advanced or intermediate stage when diagnosed [2,3]. Despite the constant progress in surgical techniques and tumor-specific therapies, the 5-year overall survival rate is still poor for patients with pancreatic cancer [4]. Most pancreatic cancer patients will eventually have local or distant recurrence despite surgery to remove the tumor [5]. Therefore, there is great interest in finding prognostic factors to improve diagnostic accuracy. Genetic alterations exist in pancreatic cancer patients that may affect prognosis [6,7]. Because of difficulties in use, genetic markers still may not be widely applied in clinical diagnosis. Distant metastases are another important factor affecting the prognosis of pancreatic cancer patients. However, there has been no reported convenient and useful pretreatment indicator to accurately predict distant metastases in pancreatic cancer patients. Therefore, the identification of more reliable predictors for evaluating the distant metastatic status of pancreatic cancer patients is urgently needed.

A growing amount of evidence demonstrates that inflammatory responses play pivotal roles in each phase of tumor development, from the initial state of cancer cells to distant metastasis [8-11]. Consistently, it is now increasingly recognized that several common inflammation-based factors such as neutrophil/lymphocyte ratio (NLR), platelet/lymphocyte ratio (PLR), and systemic immune-inflammation index (SII) are associated with poor prognosis in various types of cancer [12-17]. These markers have the advantages of convenience and low cost, and can be used for estimation of clinical prognosis.

The prognostic value of NLR has also been assessed in patients with pancreatic cancer [15]. However, little is known about the association between pretreatment NLR and distant metastases in pancreatic cancer. In this study, we aimed to determine whether pretreatment NLR relevant to metastasis and could be predictive of survival pancreatic cancer patients.

Materials and methods

Study population

Total 256 patients who were diagnosed with pancreatic cancer at Nanfang Hospital of Southern Medical University from April 2009 to April 2015 were enrolled in this study. The following exclusion criteria were as follows: (1) patients who received previous treatment, (2) patients who had any type of acute infection or chronic inflammatory process, and (3) life expectancy less than 30 days. The last follow-up date was April 06, 2016. Overall survival (OS) was calculated from the date of diagnosis to the date of death or last follow-up.

Ethical statement

The protocol for this study was approved by the Ethical Committee of Nanfang Hospital of Southern Medical University, and informed consent relating to the use of clinical data was obtained from all enrolled patients.

Clinical examination

Blood samples were obtained at the time of first visit to measure neutrophil, lymphocyte, platelet (PLT) count, white blood cell count and carbohydrate antigen (CA) 19-9 levels. The NLR and PLR were calculated by dividing the neutrophil or platelet count by the lymphocyte count, respectively. A receiver operating characteristic (ROC) curve was used for selecting cutoff values for pretreatment NLR. Patients were then divided into two groups according to the cutoff point. Diagnosis of pancreatic cancer was made based on the comprehensive findings from CA 19-9, ultrasonography, computed tomography (CT), magnetic resonance imaging (MRI), cytology, and histopathology. The histologic assessment was based on the resected specimen in patients who had undergone resection and a biopsy specimen in patients who underwent exploration only. In patients who were considered unresectable, histological and cytological diagnosis was made with CT or EUS guided. The clinical stages of all enrolled patients were assessed based on CT and MRI examination. Tumor stages were based on the American Joint Committee on Cancer (AJCC) staging system. Distance metastasis assessment was based on CT, MRI or positron emission tomography-computed tomography (PET-CT).

Statistical analysis

Data analysis was carried out using SPSS for Mac, version 23 (SPSS Inc., Chicago, IL, USA). A box-plot and the Shapiro-Wilk test were used to describe the normality of distribution for each continuous variable. The data were expressed as medians and ranges where applicable. Differences between the groups were tested using the Mann-Whitney *U*-test for the data of abnormal distributions. Survival curves were estimated using Kaplan-Meier analysis and were compared by the log-rank test. Univariate analyses were performed to assess significant differences in all variables influencing overall survival. Multivariate analyses were performed by the Cox proportional hazards model for significant variables in univariate analysis. Differences at $P < 0.05$ were considered to be statistically significant in all statistical tests.

Results

Patient clinical characteristics

This study involved 256 patients who were diagnosed with pancreatic cancer. The enrolled patients consisted of 87 (34.0%) females and 169 (66.0%) males, and median age was 63 years (range, 26-85). The median follow-up period was 5.67 months. There were 251 (98.0%) confirmed deaths, and 5 (2.0%) were alive at last follow-up. More than one-half of

Download English Version:

<https://daneshyari.com/en/article/8785589>

Download Persian Version:

<https://daneshyari.com/article/8785589>

[Daneshyari.com](https://daneshyari.com)