SHORT COMMUNICATION

Differences in the Pattern of Gastric Carcinoma Between North-Eastern and North-Western Peninsular Malaysia: A Reflection of *Helicobacter Pylori* Prevalence

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Summary

A retrospective study on demographics of gastric carcinoma was conducted in Hospital Pulau Pinang (HPP) with the aim of comparing it to a previous study done in Hospital Universiti Sains Malaysia (HUSM), Kelantan. The incidence of gastric carcinoma was much higher in Penang compared to Kelantan. It was commonest in males and Chinese. The incidence and site of gastric carcinoma closely parallels *Helicobacter pylori* infection rates. This was evidenced by the higher incidence and non-cardia location of gastric carcinomas in an area with higher *H. pylori* infection rates (HPP) compared to a much lower incidence and preponderance of cardia tumours in HUSM where the *H. pylori* infection rate is exceptionally low.

Key Words: Gastric carcinoma, Helicobacter pylori, Malaysia

In the recent Report of the National Cancer Registry, gastric cancer was ranked as the ninth most common cancer in males in Peninsular Malaysia in 2002[1]. The aim of this study was to compare the demographics of gastric carcinoma between Penang on the west coast and Kelantan on the east coast of Peninsular Malaysia.

Demographic data of all gastric carcinoma cases was retrieved from the pathology records of Hospital Pulau Pinang (HPP) for the year 2000, and compared to a similar study conducted by the main author in Hospital Universiti Sains Malaysia (HUSM), Kelantan[2]. There were a total of 32 cases of gastric carcinoma recorded in HPP in the year 2000 compared to 23 cases during a 5-year period (1995-1999) in HUSM. Material sent to the HPP pathology laboratory comprised 11 gastric biopsies and 21 gastrectomy specimens. Patients comprised of 26 males with a male:female ratio of 4.3:1. The median age of patients was 62 years (range 25 to 86 years). This was similarly reflected by HUSM results with a median age of 60 years and high male preponderance. The racial distribution of patients in the HPP study was 23 Chinese: 6 Indian: 3 Malay while the HUSM study had 5 Chinese and 18 Malay.

In HPP, 9/32 (28%) gastric carcinomas were located in the cardia or gastro-oesophageal junction while 23/32(72%) were non-cardia. This was in sharp contrast to the HUSM study which showed a preponderance of cardia-located tumours (14/23 or 61% cases). According to the Lauren classification, there were 23 intestinal type (including 2 cases of early gastric cancer), 8 diffuse and 1 mixed type in HPP. The ratio was similar to the HUSM study with 16, 5 and 2 cases

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respectively, with absence of early gastric cancer. Fourteen (4 diffuse and 10 intestinal type) of 21 gastrectomy specimens in HPP exhibited lymph node metastases. Both cases of early gastric cancers were negative for metastases. Status of *Helicobacter pylori* infection was most often not documented by the pathologists in their reports and therefore not included in the analysis. Notwithstanding this, the 36.7% prevalence rate of *H. pylori* infection documented in endoscoped patients at HPP[3] is far higher than the 13.5% prevalence rate in HUSM[4].

It should be emphasized that HPP is only one of the many hospitals in Penang and the true incidence of gastric carcinoma would be much higher. On the contrary, HUSM is one of two major hospitals in the whole state of Kelantan that offer histopathology services. The male predominance in gastric cancer is well established. The gastric cancer rate in HPP was highest in Chinese, in concordance with the HUSM study and another study also conducted in the predominantly Malay population of Kelantan. Chinese constituted 19.3% of patients with gastric carcinoma in the latter study[5]. The National Cancer Registry data showed Chinese and Indians had 4 times and 3 times higher rate respectively of gastric cancer compared to Malays[1].

The role of *H. pylori* in gastric carcinogenesis has been reiterated time and again and is further substantiated in this comparative study showing the close parallel relationship between incidence of gastric carcinoma and *H. pylori* infection rates. Indeed Kelantan is reported to have one of the lowest prevalence rate of *H. pylori* infection in the world[6] and is associated with an exceptionally low incidence of gastric carcinoma[2,5]. However, this relationship is not that simple as within the different races, there exist consistent and significant differences in prevalence of *H. pylori* infection being highest in Indians followed by Chinese and exceptionally low in Malays[4]. However, Chinese are at highest risk of developing gastric cancer. Therefore other factors are most certainly involved in initiation and promotion of gastric carcinogenesis.

The relationship between *H. pylori* infection and location of gastric carcinoma is interesting. *H. pylori* has been reported to be a major factor in gastric non-cardial carcinogenesis[7]. The results of our comparative study strongly support this, demonstrated by a greater frequency of non-cardia tumours in an area with high incidence of *H. pylori* (HPP), in sharp contrast to a majority of cardia tumours in an area with low *H. pylori* infection rates (61% and 71% of tumours were located in cardia/proximal stomach in HUSM study and in the Kelantan study respectively)[5]. The ratio of intestinal to diffuse carcinomas is comparable to other studies. The value of histological type of carcinoma in predicting prognosis is controversial. There appears to be a marginally higher incidence of lymph node metastases in patients with diffuse type of carcinoma compared to intestinal type in HPP though this should be further validated in relation to standard TNM staging and patient survival.

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