Risk Factors for the Development of Gastric Cancer, and their Awareness Among the General Public in Nepal: A Necessary Enquiry

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Abstract

Gastric carcinoma is a common malignancy in this part of the world. There is a need for follow-up cohort studies regarding carcinogenic property of H. pylori and prevalence of its different strains in different ethnic groups in the sub-Himalayan belt. This may help in understanding the pathogenesis of gastritis and gastric cancer as well as the responsiveness and resistance of different anti-helicobacter regimes. The groups at highest risk include elderly males with history of alcoholism & smoked meat consumption from Gurung community and people with history of smoking from Brahmin communities in Nepal. There is obvious scope of further studies on gastric carcinoma in other parts of this country and also to assess the other risk factors in this population. Nepal government has to gear up an awareness study and according to that an effective community-based interventional programme.

Introduction

Gastrointestinal cancers account for a large fraction of human neoplasms. They are almost without exception incurable when gross metastases exist[1]. Gastric carcinoma is a worldwide disease. In 1990, it was the second most common cancer in the world with an estimated 800,000 new cases every year, 60% of them being in developing countries[2]. The areas of highest incidence include Eastern Asia, South America and Eastern Europe and those of lower incidence include North America, North Europe, most parts of Africa and South Eastern Asia[3, 4]. The exact cancer prevalence rate in Nepal is unknown due to the lack of a population-based national cancer registry. However, every year at least 17,000 new cancer cases are estimated and the figure is expected to go up considerably in the future[5]. According to the present data from Nepal, it is the 5th most common cancer (ASR 8.2%) with both genders combined, standing 3rd among males and 6th among females[6]. A hospital-based study done in Nepal showed that 8.8% were GIT malignancies among the all cancers treated by radiotherapy in Pokhara[7,8]. Endoscopic biopsy is widely regarded as the most sensitive and specific diagnostic tool for gastric cancer[3]. Neoplasms of the various parts of the gastrointestinal tract have a marked variation of distribution geographically. These variations are according to the race, gender, age, the part of the gastrointestinal tract affected and other exogenous risk factors[9, 10]. Identifying the environmental risk factors may possibly shed more light on effective treatment and the prevention of these diseases.

Types of stomach cancer:
The cells that form the tumor determine the type of stomach cancer. Cancers arising from the stomach can be broadly classified into 4 types, each of which has vastly different treatment strategies and prognostic implications. These include:

Cancers that begin in the epithelial surface of stomach (Carcinomas):
Majority of the carcinomas arising in the stomach are adenocarcinomas, contributing to nearly 90% of all gastric malignancies. These tumours arise from the glandular cells that line the inside of the stomach.

Cancer that begins in immune system cells (lymphoma):
The walls of the stomach contain a small number of immune system cells that can develop cancer. Lymphoma in the stomach is rare.

Cancer that begins in hormone-producing cells (carcinoid tumours):
Hormone-producing cells can develop into gastric carcinoids. Carcinoids of the stomach are rare.

Cancer that begins in nervous system tissues:
A gastrointestinal stromal tumor (GIST) begins in specific nervous system cells found the stomach. GIST is a rare form of stomach cancer.

Causes and Risk Factors:
A number of risk factors have been identified in the development of carcinomas arising from the stomach. Other than environmental and hereditary factors, important risk factors include:
Helicobacter pylori and Cancer:
There appears to be a relationship between H. pylori infection and gastric cancer, gastric mucosa-associated lymphoid tissue (MALT) lymphoma, and other cancers. The presence of Helicobacter pylori is associated with a three to six times greater risk of gastric cancer than if infection is absent. The increased association of H. pylori appears to be confined to those with distal gastric cancer and intestinal-type malignancy. However, only a small minority of infected people develop gastric carcinoma, and there are no known data regarding the screening of infected patients or the effect of treatment of infection on subsequent malignancy[11].

Dietary habits:
Dietary habits have been implicated in the development of gastric cancer. Long-term ingestion of high concentrations of nitrates in dried, smoked, and salted foods appears to be associated with a higher risk. The nitrates are thought to be converted to carcinogenic nitrates by bacteria. Other theories explain how certain chemicals are formed in meat that is cooked using high-temperature methods, such as pan frying or grilling, and describe the results of research on the relationship between consumption of these chemicals and cancer risk. An analysis of participants in a large European cohort study showed a significant association between gastric cancer and meat consumption, principally in men and women infected with the bacteria H. pylori, according to the March 1, 2006, issue of the Journal of the National Cancer Institute. The risk of gastric cancer is greater among lower socioeconomic classes. Migrants from high- to low-incidence nations maintain their susceptibility to gastric cancer, while the risk for their offspring approximates that of the new homeland. These findings suggest that an environmental exposure, probably beginning early in life, is related to the development of gastric cancer, with dietary carcinogens considered the most likely factors. Demographics of gastric carcinomas among Nepalese In a study conducted by Ghosh et al., the most affected age group and caste were 61-70 years (47.36%, CI 42.44% to 52.27%) and Gurungs (32%, CI 27.16% to 36.32%), respectively. The commonest gross and microscopic types were Borrmann's type IV (40%, CI 29.63% to 50.86%) and intestinal type (53%, CI 47.99% to 57.81%). Gastric antrum was the most affected site (70%, CI 65.26% to 74.29%). Among the cases with documented H. pylori infection, gastric antrum (62.5% CI 45.73% to 79.27%) was found to be the commonest site. Among all cases in Gurung, Chhetri and Brahmin communities, we retrieved data regarding risk factors in 93, 65 and 50 cases respectively. Significant relationship was found between the three risk factors studied and the ethnic groups. Smoked meat and alcohol were found to be associated with gastric carcinoma more in Gurungs and Chhetris than in Brahmins. On the contrary, cases among Brahmins are found to more associated with smoking than Gurungs and Chhetris[12].

Prevention:
Cancer prevention is action taken to lower the chance of getting cancer. By preventing cancer, the number of new cases of cancer in a group or population is lowered. Hopefully, this will lower the number of deaths caused by cancer. Some risk factors for cancer can be avoided, but many cannot. For example, both smoking and inheriting certain genes are risk factors for some types of cancer, but only smoking can be avoided. Regular exercise and a healthy diet may be protective factors for some types of cancer. Avoiding risk factors and increasing protective factors may lower the risk of developing malignancy, but it does not assure that a person will not get cancer. Different ways to prevent cancer are being studied, including:

Changing lifestyle or eating habits: Consuming food high in dietary fibre, and increase in intake of fresh fruits and vegetables are believed to be protective.

Avoiding things known to cause cancer: Similarly, avoiding smoking/alcohol consumption, and salted/smoked food, etc are expected to reduce the risk of gastric cancer Taking medicines to treat a precancerous condition or to keep cancer from starting- referred to as chemoprevention. As of now there is no proven chemo-prevention strategy for gastric cancer, though different methods including anti-H. pylori treatment and COX 2 inhibitors have been tried.

Conclusion
Gastric carcinoma is a common malignancy in this part of world. There is need of follow up cohort studies regarding carcinogenic property of H. pylori and prevalence of its different strains in different ethnic groups in the sub-Himalayan belt. This may help in understanding the pathogenesis of gastritis and gastric cancer as well as the responsiveness and resistance of different anti-helicobacter regimens. The most high risk group includes elderly males with history of alcoholism & smoked meat consumption from Gurung community and with history of smoking from Brahmin

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References

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