

# Gastric Carcinoma in the West Indies: A Trinidad Study

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Gastric carcinoma, the commonest cause of death from malignant disease in Trinidad, has decreased steadily over the period 1968–1977. Of the 1052 deaths during this time, females accounted for a relatively high percentage (45%) of cases. There is a predominance of antral tumors, and most cases present with very advanced disease (88% with Stage III & IV). This results in a low resectability rate (32%). Its racial predilection for blacks of the lower income group suggests that both genetic and environmental factors may be important. The possible role of dietary factors is discussed.

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**G**ASTRIC CARCINOMA is fairly common worldwide, but there is marked variation in frequency in different populations.<sup>1</sup> Even within a given country, differences in race, occupation, and diet seem to affect the incidence of this disease.<sup>2</sup> In Trinidad, gastric cancer is the commonest cause of death from malignancy. In spite of this, there is no report on the condition. This study documents the pattern of the disease and seeks to identify possible predisposing factors.

## Materials and Method

All statistics available on gastric cancer deaths in the 10-year period 1968–1977 were reviewed. Data were compiled from the Ministry of Health, Central Statistical Office, Port-of-Spain General Hospital and National Radiotherapy Centre. In addition, 100 cases seen at the Port-of-Spain General Hospital during the years 1976–1981 were reviewed in detail to document the clinical features of the disease.

## Results

### Incidence

There were 1052 deaths during the 10-year period 1968–1977, giving an annual average of 105.2. There has been a steady decline in the mortality and in the later 5 years it was consistently less than the annual average (Fig. 1). This gives a death rate of about 13 per 100,000 for 1968 and 8 per 100,000 for 1977.

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### Age and Sex

Age distribution was highest in the 60s (Fig. 2). There were 576 males and 476 females giving a M:F ratio of 1.2:1.

### Race and Income

Of the 100 clinical cases reviewed, 80% were black, 12% East Indian, and 8% mixed. Ninety percent were from the lower and 10% from the middle income groups.

### Clinical Features

The commonest clinical findings were weight loss (90%), anorexia (84%), and vomiting (76%) (Table 1). Thirty-eight percent of patients were of blood group A, 22% were B, 36% were O, and 4% were AB. In 63% the hemoglobin was less than 10 g/dl.

### Site and Spread

The antrum was affected in 64% of cases while the fundus (15%), body (10%), and whole stomach (11%) were less commonly involved. Only 12% had Stage I and II disease, while in 88% it was Stage III and IV. Resection was possible in only 32% of patients, while the others had a by-pass or no surgery at all.

## Discussion

The decreasing incidence of gastric cancer seen in our population has been identified in many countries, including Trinidad's Caribbean neighbor, Jamaica.<sup>3,4</sup> It is thought that this may be related to changes in life-style, especially diet.<sup>5</sup> In Trinidad, there has been a fairly rapid change in life style, toward North American and Western European standards and it is likely that this may be linked to the decline of this neoplasm.

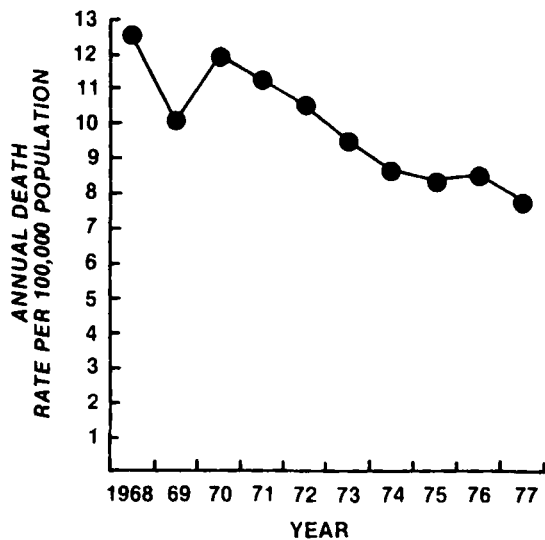


FIG. 1. Trend in mortality from gastric carcinoma in the 10-year period 1968-1977 (1052 deaths).

The race difference in this disease is very interesting and is almost certainly multifactorial. An incidence of 80% black is disproportionately high, since the population served by this hospital is about 55% black, 35% East Indian, and 10% others. Although the incidence is low in

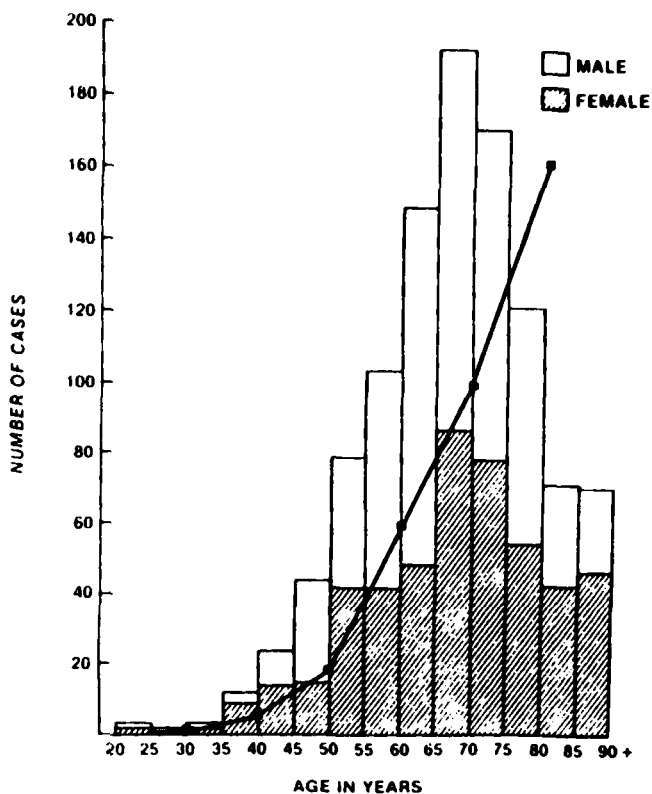


FIG. 2. Age distribution in gastric carcinoma (1052 cases). Graph shows age-adjusted death rate.

TABLE 1. Clinical Findings in Gastric Carcinoma (100 Cases)

Clinical findings	No. of patients
Weight loss	90%
Anorexia	84%
Vomiting	76%
Pain	62%
Mass	32%
Hematemesis/melena	27%

Africa,<sup>6</sup> it is more common among blacks than whites in South Africa<sup>7</sup> and America.<sup>8</sup> The low death rate in the Asian Indian relative to blacks, identified in this study, has also been noted in South Africa.<sup>9</sup>

Dietary factors may also contribute to this race difference. In general, and certainly up to 20 years ago, Indians in Trinidad consumed less meat and more fruits and vegetables than blacks, who had a much higher intake of meat, especially beef and pork. Micronutrients found in fresh fruits and vegetables are thought to offer some protection against the development of gastric cancer, while the nitrates of meat, especially if not properly refrigerated, can be harmful.<sup>10</sup> A similar dietary difference has been reported in India where the Hindus of Gujarat, who are strict vegetarians, have a much lower incidence of gastric malignancy than the Christians and Parsees who are not.<sup>11</sup>

In our population, gastric cancer is sufficiently common among females to rank third as a cause of death from neoplastic disease. The male:female ratio of 1.2:1 must be regarded as high, since in Doll's review it varied from 1.5-3:1, but in no population did females outnumber males.<sup>12</sup> This occurrence among our women may be due to their high parity. It is thought that depression of immune reactivity during pregnancy may be responsible for a variation in cancer risk with increasing parity. Bjelke found that women with four or more live births have a greatly elevated risk of developing stomach cancer prior to age 50.<sup>13</sup>

The predisposition of lower income groups to develop gastric cancer has been documented in several countries.<sup>14,15</sup> However, no definite occupational risk factor has been identified and this predisposition of poorer groups may be related to dietary factors.<sup>16</sup> Up to 20 years ago, many poorer families in our population did not have a refrigerator and inadequate storage may have led to the nitrosation of food nitrate, which is thought to predispose to gastric cancer.<sup>10</sup>

Age predominance in the 60s, weight loss, anorexia, vomiting, and pain are common clinical features in most studies.<sup>17,18</sup> However, the marked antral predominance is not so universal but has been reported from parts of Europe, Asia, Australia and the West Indies.<sup>17,19,20</sup>

The predisposition of patients with blood group A has been well established,<sup>21,22</sup> but a few studies show a pre-

dominance of group O.<sup>17,18</sup> In our population, blood groups A and O account for about the same number of cases (38% and 36%, respectively). This blood group distribution is not statistically different from that in the rest of the hospital population.

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