Colorectal Carcinoma in Patients Less than 40 Years of Age*

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The mean incidence of colorectal carcinoma in persons under age 40 in Sweden is 1.74/100,000/year. Over a 30-year period, 1950 through 1979, 1061 patients with colorectal carcinoma were seen, 48 of whom were under age 40 (21 to 39 years) and in this study were compared with older patients. Carcinoma was superimposed upon ulcerative colitis in 18 patients. All patients treated for palliation died within two years. Curability rate, 67 per cent, and the proportion of Dukes' A lesions were the same as in older patients, whereas young patients had fewer B and more C lesions. Five-year survival was 33 per cent overall and 50 per cent in curable cases, not different from the rates in older patients (33 and 47 per cent). Five-year survival was 100 per cent in stage A, 50 per cent in stage B, and 33 per cent in stage C. The age factor had no impact upon survival, and colitic origin of a carcinoma did not decrease survival more than did carcinoma itself. It is concluded that colorectal carcinoma in patients under age 40 differs in no respect from the disease in older patients. (Key words: Colorectal carcinoma; Ulcerative colitis; Follow-up study)

Colorectal carcinoma is an unusual disease before age 40, less than 8 per cent of tumors being diagnosed in this age group.1,2 A study from Denmark3 demonstrated an annual incidence of 1.4 per 100,000 in patients under 40 vs. 98 in older patients.

The uncommon occurrence in young patients demands a high index of suspicion and an increased awareness if these lesions are to be found in a curable stage. It is an issue of prime importance to evaluate the results of treatment. Outcome on a par with diagnostic effort may aid in maintaining the high level of suspicion so intensely needed for these few patients, whereas a poor outlook might induce investigative and therapeutic defeatism.

Predisposing conditions, such as ulcerative colitis and polyposis of the colon, are common in young patients with colorectal cancer. Opinions differ about the extent to which these factors influence the prognosis.4,5

Materials and Methods

Complete clinical information and survival data were obtained for 1061 patients with a diagnosis of colorectal carcinoma, seen as inpatients at the Department of Surgery, Karolinska Hospital, Stockholm, Sweden, over a 30-year interval from 1950 through 1979.

Patients under age 40 were compared with those over 40 with respect to tumor location, curability rate, tumor stage, predisposing disease, and survival time.

Crude and uncorrected survival figures were utilized, i.e., patients were considered as survivors whether tumor was present or absent and as dead irrespective of the cause of death.
Tumors were classified according to Dukes’ system\(^6,7\): Dukes’ A is tumor confined within the bowel wall; Dukes’ B is tumor penetrating the muscularis propria; and Dukes’ C is tumor with regional lymph-node metastases.

Population statistics and incidence rates were obtained from The Swedish Cancer Registry.\(^8\)

Chi-square analysis with Yates’ correction for continuity and Fisher’s exact probability test were used for testing the significance of differences between distributions. Regression was calculated according to the method of least squares.

### Results

Persons under age 40 constituted 55 per cent of the mean population in Sweden (7.75 million) and contributed 2.5 per cent of colorectal malignancies. The mean annual number of new cases in the entire country in this age group was 55 patients with colonic cancer, i.e., 3 per cent of all colonic cancers, and 20 with rectal cancer, i.e., 2 per cent of all rectal cancers.

The mean annual incidence of colorectal cancer in young patients was 1.74 per 100,000, colonic cancer contributing 1.28 and rectal cancer 0.46 to this sum; the incidence for patients over age 40 was 83.3 per 100,000 per year. Mean annual age-specific incidence rates for patients under age 40 are given in Figure 1.

Forty-eight (4.5 per cent) of the 1061 patients in the Karolinska Hospital series were under 40 years of age (21 to 39 years); 48 per cent were males, vs. 53 per cent of older patients (no significance).

Percentage tumor distribution is given in Figure 2; rectal tumors were less common and synchronous multifocal tumors more common in young patients (Table 1).

Sixteen patients had incurable lesions and were treated for palliation; their survival decrement rate did not differ from that for older patients with incurable disease (Fig. 3).

Treatment with the intention of cure was performed for two-thirds of the young patients, curability rate being the same as in older patients (Fig. 4); no difference was noted in the proportion of Dukes’ A lesions, whereas young patients had fewer B and more C lesions (Fig. 4).

Five-year survival rates were equal in young and old patients, both overall and in curable cases (Fig. 5), nor were any differences noted with respect to survival within tumor stages (Fig. 6).

### Table 1. Percentage Tumor Distribution in Patients Under and Over 40 Years of Age

<table>
<thead>
<tr>
<th>Tumor Location</th>
<th>&lt;40 Yr (Number = 48)</th>
<th>&gt;40 Yr (Number = 1013)</th>
<th>Significance of Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cecum/ascending colon</td>
<td>19</td>
<td>17</td>
<td>None</td>
</tr>
<tr>
<td>Transverse colon/flexures</td>
<td>21</td>
<td>11</td>
<td>None</td>
</tr>
<tr>
<td>Descending colon</td>
<td>6</td>
<td>4</td>
<td>None</td>
</tr>
<tr>
<td>Sigmoid colon</td>
<td>21</td>
<td>22</td>
<td>None</td>
</tr>
<tr>
<td>Rectosigmoid</td>
<td>2</td>
<td>7</td>
<td>None</td>
</tr>
<tr>
<td>Rectum</td>
<td>21</td>
<td>37</td>
<td>(P &lt; 0.05)</td>
</tr>
<tr>
<td>Multiple tumors</td>
<td>10</td>
<td>1</td>
<td>(P &lt; 0.00002)</td>
</tr>
</tbody>
</table>