Colon cancer: ESMO Clinical Recommendations for diagnosis, adjuvant treatment and follow-up

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incidence

In 2006 there were 412 900 new cases of colorectal cancer in Europe. This is 12.9% of all cancer cases. Colorectal cancer was responsible for 217 400 deaths in Europe in 2006. This represents 12.2% of all cancer deaths.

diagnosis

Diagnosis of colon cancer requires histopathologic confirmation. Risk factors for, location and histological evaluation of colonic tumors should be documented.

staging and risk assessment

Staging provides essential prognostic information relevant for choosing adequate therapy and should also identify patients with resectable distant metastases.

Preoperative staging consists of clinical examination, blood counts, liver and renal function tests, carcino-embryonic antigen (CEA), chest X-ray or CT scan, CT scan of the abdomen, and colonoscopy of the entire large bowel, i.e. with postoperative repeat colonoscopy if proximal parts of the colon were not accessible preoperatively.

Pathologic staging should be carried out according to the TNM 2002 system with optional listing of the modified Dukes stage, as described in Table 1.

Risk factors for colorectal cancer are: family history, familial adenomatous polyposis (FAP) and attenuated FAP (AFAP) syndromes, hereditary non-polyposis colorectal cancer (HNPCC) syndrome, past history of colorectal cancer or adenoma, chronic ulcerative colitis and Crohn’s disease.

treatment plan in colon cancer

Adjuvant chemotherapy is recommended for stages T1–4, N1–2, M0 (i.e. stage III, modified Dukes C1–3). Adjuvant chemotherapy may be considered in selected node-negative patients, especially if high-risk factors for recurrence are found. Amongst the known high-risk factors in stage II colon cancer are: T4, poorly differentiated adenocarcinoma/undifferentiated carcinoma, vascular invasion, lymphatic vessel invasion, perineural invasion, obstruction or tumor perforation at initial presentation, ≤12 regional lymph nodes examined and high CEA level.

Standard adjuvant treatment consists of fluoropyrimidine-based chemotherapy which has been shown to result in a statistically significant survival benefit. The combination of 5-fluorouracil (5-FU)/leucovorin (LV) plus oxaliplatin significantly improves disease-free survival in stage II and III colon cancer and improves also overall survival in stage III colon cancer compared with 5-FU/LV.

Options for adjuvant treatment include infusional 5-FU/LV regimens and capecitabine. Capecitabine has been shown to be at least as effective as, and less toxic than, bolus 5-FU/ LV.

follow-up

The aims of follow-up (surveillance) are to identify recurrence of colon cancer at a stage in which the diagnosis or recurrence will

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Table 1. TNM 2002 system

<table>
<thead>
<tr>
<th>TNM</th>
<th>Stage</th>
<th>Extension to</th>
<th>5-year overall survival (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tis N0 M0</td>
<td>0</td>
<td>Carcinoma in situ</td>
<td>Most likely normal</td>
</tr>
<tr>
<td>T1 N0 M0</td>
<td>I</td>
<td>Mucosa or submucosa</td>
<td>≥90</td>
</tr>
<tr>
<td>T2 N0 M0</td>
<td>I</td>
<td>Muscularis propria</td>
<td>≥85</td>
</tr>
<tr>
<td>T3 N0 M0</td>
<td>IIa</td>
<td>Subserosa/pericolic tissue</td>
<td>≥80</td>
</tr>
<tr>
<td>T4 N0 M0</td>
<td>IIb</td>
<td>Perforation into visceral peritoneum or invasion of other organs</td>
<td>72</td>
</tr>
<tr>
<td>T1–2 N1 M0</td>
<td>IIa</td>
<td>≤3LN</td>
<td>60–83</td>
</tr>
<tr>
<td>T3–4 N1 M0</td>
<td>IIIb</td>
<td>≤3LN</td>
<td>42–64</td>
</tr>
<tr>
<td>T1–4 N2 M0</td>
<td>IIIc</td>
<td>≥4LN</td>
<td>27–44</td>
</tr>
<tr>
<td>Any T any N M1</td>
<td>IV</td>
<td>Distant metastases</td>
<td>&lt;10</td>
</tr>
</tbody>
</table>

LN, lymph nodes.
have therapeutic implications: i.e., surgery for metastatic disease or for local recurrence or chemotherapy for metastatic disease.

There is no preferred schedule for follow-up. Besides history and physical examination, the following tests may be considered to identify patients in need of salvage surgery or palliative care and to prevent second colorectal cancers.

- Colonoscopy at year 1 and thereafter every 3–5 years to look for metachronous adenomas and cancers.
- Ultrasonography of the liver every 6 months for 3 years and after 4 and 5 years. CT scan of the chest and abdomen for 3 years can be considered in patients who are at higher risk for recurrence.
- Chest X-ray has a low sensitivity but can be considered every year for 5 years.
- CEA determination every 3–6 months for 3 years and every 6–12 months in years 4 and 5 after surgery if initially elevated.
- Other laboratory and radiological examinations are of unproven benefit and should be restricted to patients with suspicious symptoms.

**note**

Levels of evidence [I–V] and grades of recommendation [A–D] as used by the American Society of Clinical Oncology are given in square brackets. Statements without grading were considered justified standard clinical practice by the experts and the ESMO faculty.

**literature**