CLINICAL ASPECTS

THERAPEUTIC, PROGNOSTIC AND DIAGNOSTIC IMPORTANCE OF THE TUMOUR MARKERS IN COLORECTAL CARCINOMA

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MATERIAL AND METHOD

A transversal prospective test was made on 156 patients who were in the records of Sibiu County Oncology Hospital’s Oncology Clinic, during 1.01.2006-31.12.2009. We studied the existence of a possible correlation between immunological markers’ value and the stage of the illness, the specific treatment, the moment of the local recurrence and the appearance of the metastasis.

RESULTS AND DISCUSSIONS

During the present study we analyzed a group of 156 patients, average age – 58 years old. 103 patients (66%) were radically operated, 45 patients (28.8%) were incomplete operated and 8 patients (5.1%) were not operated at all. A number of 61 patients (39.1%) registered evolution of the illness (osseous, of the lungs, hepatic metastasis, or local recurrence) and the rest of 95 patients (60.89) presented no evolution of the illness.

1. CEA:

From the total amount of 156 patients, in the case of 92 (59%), in the moment of diagnosis, the CEA was over the normal value, for 29 patients (18.58%) the CEA was normal, and in the case of 35 patients (22.4%) the CEA was not identified.

Abstract: Colorectal carcinoma represents a frequent neoplasia localization both in men, and in women, at world level. The most usual biomarkers for colorectal carcinoma with prognostic and predictive importance for diagnosis and treatment are the CEA and CA19-9.
diagnosis. 47 patients (30.12%) presented heredo-collateral antecedents, as neoplasias and/or gastrointestinal pathology (gastric ulcer, haemorrhoids, intestinal polyposis, ulcero-haemorrhagic rectocolitis); 34 patients (21.79%) presented gastrointestinal pathological personal antecedents (intestinal polyps, irritable bowel, diarrhoea or constipation, haemorrhoids etc) and 66 patients (42.30%) presented cardiac or metabolic personal antecedents (obesity, diabetes mellitus, ischemic heart disease, high blood pressure).

The analysis showed that the existence of the heredo-collateral antecedents, of the gastrointestinal pathological personal antecedents and of the general pathological personal antecedents correlates with the high value of the CEA in a great number of patients: 35 patients (26.71%) with AHC, 28 patients (21.37%) with APP and 42 patients (32.06%) with APP. These data are not statistically important.

Table no. 1. Correlation between CEA in the moment of diagnosis and in the stages of the illness

<table>
<thead>
<tr>
<th>Stage</th>
<th>CEA Normal values</th>
<th>Over normal values</th>
<th>Unidentified</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd</td>
<td>17</td>
<td>10 (6.4%)</td>
<td>22</td>
<td>49</td>
</tr>
<tr>
<td>3rd</td>
<td>10</td>
<td>50 (32.1%)</td>
<td>11</td>
<td>71</td>
</tr>
<tr>
<td>4th</td>
<td>2</td>
<td>32 (20.5%)</td>
<td>2</td>
<td>36</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>92 (58.7%)</td>
<td>35</td>
<td>156</td>
</tr>
</tbody>
</table>

P = 0.000* likelihood ratio (99% accuracy)

Although CEA is not recommended as screening test for colorectal carcinoma – taking into account the fact that international studies registered false-positive results – we can say that the value of CEA identified in the moment of diagnosis is important to sustain the diagnosis, especially in the advanced stages of the illness, as statistically important indicator.

We observed that a number of 92 patients (59%) registered in the moment of diagnosis an over normal value of CEA; from these 55 patients (41.96%) registered an evolution of the illness (local recurrence, metastasis), and 37 patients (28.24%) did not register an evolution of the illness. 29 patients (18.6%) registered normal CEA value in the moment of diagnosis: 6 patients (4.5%) registered evolution of the illness (local recurrence, metastasis) and 23 patients (17.55%) did not register an evolution of the illness.

Table no. 2. CA 19-9 values in the moment of diagnosis and in the stages of the illness

<table>
<thead>
<tr>
<th>CA19-9</th>
<th>1st Stage</th>
<th>2nd Stage</th>
<th>3rd Stage</th>
<th>4th Stage</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal values</td>
<td>23 (41.7%)</td>
<td>41 (26.3%)</td>
<td>15 (9.6%)</td>
<td>79 (50.6%)</td>
<td></td>
</tr>
<tr>
<td>Over normal values</td>
<td>5 (3.2%)</td>
<td>15 (9.6%)</td>
<td>14 (9%)</td>
<td>34 (21.8%)</td>
<td></td>
</tr>
<tr>
<td>Unidentified</td>
<td>21 (13.5%)</td>
<td>15 (9.6%)</td>
<td>7 (4.5%)</td>
<td>43 (27.6%)</td>
<td></td>
</tr>
</tbody>
</table>

P=0.005*likelihood ratio 156(100%)

Picture no. 3. Correlation between CEA in dynamics and the evolution of the illness (metastasis or local recurrence)

Linking the marker’s value in the moment of diagnosis with the one during the evolution of the illness, it has been found that a high CEA value in the moment of diagnosis is associated with a high value in the dynamics of the illness evolution; it is associated with the evolution of the illness both through local recurrence and metastasis. We can conclude that these variables are significantly associated (with 99% accuracy).

The majority of the studied patients followed: surgical treatment and cytostatic adjuvant therapy +/- radiotherapy. From the 103 patients who received radical surgical therapy, a larger number registered, at the end of the therapy, normal values of the tumour marker versus 45 patients who received sub-optimal surgical therapy: 26% versus 3%.

We can say that CEA value in dynamics may be used as a statistically significant indicator of the efficiency of the radical surgical therapy (with 99% accuracy).

From the 138 patients who received adjuvant chemotherapy: 28 patients (20.3%) registered a normal CEA value in the moment of diagnosis, 81 patients (58.7%) registered a high CEA value in the moment of diagnosis and in the case of 29 patients (21%) CEA was not identified.

From the 18 patients who received cytostatic adjuvant therapy: 1 patient (5.6%) registered a normal CEA value in the moment of diagnosis, 11 patients (61.1%) registered a high CEA value in the moment of diagnosis and in the case of 6 patients (33.3%) CEA was not identified.

A CEA value registered in dynamics correlated with cytostatic adjuvant therapy does not appear to be a statistically significant indicator of the effectiveness of the therapy (p>0.05).

2. CA19-9

From the 156 studied patients: 34 patients (21.8%) registered high CA19-9 value in the moment of diagnosis, 79 patients (50.6 %) registered a normal CA19-9 value in the moment of diagnosis and in the case of 43 patients (27.6%) CA19-9 was not identified.

Table no. 2. CA 19-9 values in the moment of diagnosis correlated with the stage of the illness

<table>
<thead>
<tr>
<th>CA19-9</th>
<th>1st Stage</th>
<th>2nd Stage</th>
<th>3rd Stage</th>
<th>4th Stage</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal values</td>
<td>0</td>
<td>23 (14.7%)</td>
<td>41 (26.3%)</td>
<td>15 (9.6%)</td>
<td>79 (50.6%)</td>
</tr>
<tr>
<td>Over normal values</td>
<td>0</td>
<td>5 (3.2%)</td>
<td>15 (9.6%)</td>
<td>14 (9%)</td>
<td>34 (21.8%)</td>
</tr>
<tr>
<td>Unidentified</td>
<td>0</td>
<td>21 (13.5%)</td>
<td>15 (9.6%)</td>
<td>7 (4.5%)</td>
<td>43 (27.6%)</td>
</tr>
</tbody>
</table>

P=0.005*likelihood ratio 156(100%)

We can say that CA19-9 value identified in the moment of diagnosis has no importance for the diagnosis itself, no matter the stage of the illness, statistically significant result (with 95% accuracy).

From the patients who registered normal CA19-9 values, the majority – 45 patients (39.82%) – did not register evolution of the illness. 32 patients (28.81%) from those who registered high CA19-9 values, registered also evolution of the illness.

![Picture no 3. CA19-9 value in the moment of diagnosis correlated with the evolution of the illness](image)

1 - Evolution 2 - No evolution

CA19-9 identified both in the moment of diagnosis and during the treatment may be correlated with the evolution of the illness, both through local recurrence or remote metastasis, the variables are significantly associated (with 99% accuracy).

We can conclude by saying that the CEA and CA19-9 values prove to be indicators of the negative prognosis of the illness, being able to highlight, several months earlier, the evolution moment of the illness.

![Picture no. 5. CA19-9 value registered in dynamics correlated with the evolution of the illness](image)

Table no 3. CEA and/or CA19-9 values registered in evolution correlated with the evolution of the illness

<table>
<thead>
<tr>
<th>CEA/CA19-9 markers’ values in evolution</th>
<th>Evolution</th>
<th>No evolution</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal value</td>
<td>6</td>
<td>65</td>
<td>71</td>
</tr>
<tr>
<td>Over normal value</td>
<td>55</td>
<td>3</td>
<td>58</td>
</tr>
<tr>
<td>Total</td>
<td>61</td>
<td>68</td>
<td>129</td>
</tr>
</tbody>
</table>

P<0.05

CONCLUSION

CEA and CA19-9 values correspond to advanced stages of colorectal neoplasias. CEA is useful, especially in monitoring the treatment (low values of the marker show an efficient treatment; the persistence of high values or increased levels of the markers during or after the therapy show a treatment with reduced efficiency or the lack of response to the treatment, case which requires a change in treatment). CEA and CA19-9 may be used as prognosis markers for colorectal neoplasia. High values of CEA and CA19-9 in the moment of diagnosis contribute to establishing the diagnosis in the case of colorectal carcinoma.

REFERENCES