CD4 T cell subpopulations in colorectal and liver cancer patients

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Disclosure Conflict of interest

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Colorectal cancer incidence and mortality

Estimated cases per year

- Worldwide: 663,600
- Europe: 570,100

Estimated deaths per year

- Worldwide: 320,600
- Europe: 288,100

Burden of colorectal cancer:

<table>
<thead>
<tr>
<th></th>
<th>Worldwide</th>
<th>Europe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incidence</td>
<td>1,230,000</td>
<td>450,000</td>
</tr>
<tr>
<td>Mortality</td>
<td>609,000</td>
<td>230,000</td>
</tr>
</tbody>
</table>

Source: Globoscan 2008
Colorectal cancer survival rate according to stage

<table>
<thead>
<tr>
<th>Stage</th>
<th>Survival Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage I</td>
<td>94%</td>
</tr>
<tr>
<td>Stage II</td>
<td>82%</td>
</tr>
<tr>
<td>Stage III</td>
<td>67%</td>
</tr>
<tr>
<td>Stage IV</td>
<td>11%</td>
</tr>
</tbody>
</table>
Tregs role in cancer development

CD39 role in cancer development

- Decreased IL-2/IFN-γ
- Decreased proliferation
- Decreased cytolytic function
- Decreased survival
CD39 is involved in the generation of adenosine from extracellular ATP releasing by dying tumor cells. Monitoring the frequency CD39 expression by regulatory T lymphocytes is important.
Study Aim

The aim of our study was to determine the frequency of CD4+CD25+FOXP3, CD4+CD39+ T cells in the peripheral blood of patients with colorectal and liver cancer.

Sample and methods

Newly diagnosed patients (25 in each group) suffering from primary colorectal/liver cancer were enrolled.

Healthy age-matched volunteers were used as controls. Peripheral blood samples were obtained before surgery/treatment.

The percentages of CD4 subpopulations were quantified using appropriate flow cytometry protocols and data were analyzed by FlowJo® v7.5.6 software.
CD4+CD25+ cells in colorectal cancer

23.2%

18.75%

21.65%
CD4+CD25+ cells in liver cancer (HCC)

25.63%  

11.19%
CD4+CD39+ cells in colorectal and liver cancer
**CD4+CD39+ and CD4+CD25+ cells percentage in colorectal and liver cancer**

<table>
<thead>
<tr>
<th>Sample/Parameters</th>
<th>Healthy persons</th>
<th>Colorectal Cancer</th>
<th>Liver Cancer</th>
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</thead>
<tbody>
<tr>
<td>CD4+CD25+</td>
<td>7.8±2.5</td>
<td>18.6±4.8</td>
<td>17.4±3.5</td>
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<tr>
<td>CD4+CD39+</td>
<td>15.3±4.7</td>
<td>27.5±5.8</td>
<td>32.4±7.3</td>
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<tr>
<td>CD4CD25high</td>
<td>1.8±1.6</td>
<td>3.5±4.7</td>
<td>4.1±1.9</td>
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</tbody>
</table>
Conclusions

The frequency of total circulating CD4+ T lymphocytes was less in the patients than in healthy individuals.

The percentage of CD4+CD39+ cells was elevated 2-fold compared to healthy donors.

The frequency of CD4+ subset does not differ between colorectal and liver cancer patients.
thank you