The current chemotherapy is not selective in destroying malignant cells. It has no influence to basic molecular changes in cancer cells, has no power to eliminate all malignant cells, and thus makes possible for malignant cells to develop resistance to anticancer drugs (1).

In the future, chemotherapy should be based on the cancer cell biology. Inactivation of the components of the signaling pathway inhibited by cyclins, cyclin-dependent kinases or tyrosine kinases and by the impact of antisense oligonucleotides, restoration of tumor suppressor genes function, inhibition of tumor growth, invasion and metastasization by inhibitors of angiogenesis or matrix metalloproteinase, enhancement of host immune response, and reverse drug resistance could be future approaches in treating malignant disease (1).

National Cancer Institute has classified the targeted therapy in categories: small molecule drugs, monoclonal antibodies, apoptosis-inducing drugs, angiogenesis inhibitors, cancer vaccines, and gene therapy (2). In the Republic of Serbia the following targeted drugs are registered: small molecule – imatinib, gefitinib, erlotinib, nilotinib, temsirolimus; monoclonal antibodies – alemtuzumab, bevacizumab, cetuximab, rituximab, trastuzumab; apoptosis inducing drugs – bortezomib; angiogenesis inhibitors – sorafenib, sunitinib; and cancer vaccines – (hepatitis B and human papillomavirus vaccines) (3).

From 2005 to 2008, the number of antineoplastic drugs ranged from 37 to 45 at the Oncology Institute of Vojvodina in Sremska Kamenica. Seventy percent of the budget for antineoplastics was spent for only 5 to 7 drugs (category A, Table 1).

From 2005 to 2008, only two monoclonal antibodies (rituximab and trastuzumab) were available in category A (Table 2).

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From 2005 to 2008, only two monoclonal antibodies (rituximab and trastuzumab) were available in category A (Table 2).
Table 3. Number of vials of monoclonal antibodies dispensed to wards of the Institute from 2005 to 2008

<table>
<thead>
<tr>
<th>INN</th>
<th>Dose</th>
<th>Package</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rituximab</td>
<td>500mg</td>
<td>Vial</td>
<td>35</td>
<td>129</td>
<td>216</td>
<td>278</td>
</tr>
<tr>
<td>Rituximab</td>
<td>100mg</td>
<td>Vial</td>
<td>64</td>
<td>320</td>
<td>436</td>
<td>472</td>
</tr>
<tr>
<td>Trastuzumab</td>
<td>440mg</td>
<td>Vial</td>
<td>24</td>
<td>115</td>
<td>486</td>
<td>729</td>
</tr>
<tr>
<td>Bevacizumab</td>
<td>400mg</td>
<td>Vial</td>
<td>0</td>
<td>0</td>
<td>76</td>
<td>52</td>
</tr>
<tr>
<td>Bevacizumab</td>
<td>100mg</td>
<td>Vial</td>
<td>0</td>
<td>0</td>
<td>95</td>
<td>12</td>
</tr>
<tr>
<td>Cetuximab</td>
<td>100mg</td>
<td>Vial</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>261</td>
</tr>
</tbody>
</table>

Annual reports of two companies Roche and Merck, which produce monoclonal antibodies, send us a message that the sale of monoclonal antibodies is in constant increase and this trend will continue in future (Figure 1).

In 2007, the sale in Merck’s oncology unit amounted to 479 million €. The sale of Merck’s major cytostatic cetuximab increased for 40% (470 million €). In 2008, the sale of cytostatics was 574 million € and the sale of cetuximab amounted to 565 million €. Researches of market within the field of oncology anticipate the increasing sale from 35 billion $ in 2006 to 80 billion $ in 2008. The aim is to spread the indication for use of cetuximab to treatment of non-small cell lung cancer and the other sites of tumor (5,6).

CONCLUSION

Because of current chemotherapy shortages, there are new approaches to the therapy of malignant diseases. The budget for development of a new drug in oncology is measured in millions of Euros so we can expect that the price of such a newly developed drug is also very high. Monoclonal antibodies for the treatment of malignant diseases with strictly defined indication are used at the Oncology Institute of Vojvodina. However, the number of vials dispensed to the wards and the number of patients treated with monoclonal antibodies is lower than with older generation of antineoplastics. The prices of new drugs are higher than for the older ones and that is why the budget for treating illness with new therapies is also very high.

**CONFLICT OF INTEREST**

We declare no conflicts of interest.

REFERENCES