The article presents the results of pharmacoeconomic evaluation of pathogenic drug therapy regimens of the most common malignant pathologies that take the first places in the structure of cancer death – stomach cancer and colorectal cancer. The analysis of the current regulatory framework for approaches to treatment and standard regimens of basic and additional lists for treatment of these diseases are given. The authors summarized results of the research of the standard chemotherapy for stomach and colorectal cancer by the methods of pharmacoeconomic analysis of "cost – minimization" and "cost – effectiveness". It has been found that from the standpoint of saving among the standard regimens of stomach cancer it is the most appropriate to use doxorubicin in the monotherapy, and for treating colorectal cancer tegafur is used. The volumes of possible savings per course of treatment for a patient have been calculated. It has been determined that the ratio of the cost – effectiveness of the most rational therapy in treating stomach cancer is the use of doxorubicin, and in treating rectal cancer it is tegafur. Thus, the results obtained allow to choose a regimen for therapy based on the needs of savings, which is extremely important in view of the shortage of healthcare financing.
regime of Mayo clinic (fluorouracil + Ca folinate), which cost of treatment was the highest among the four major regimens of SC ChT – $710 (Table 1).

The additional list of regimens of SC ChT, which under the law can be used with adequate providing or at the expense of the patient at his request, involves the use of monoregimens of capecitabine, tegafur or imatinib. Since the duration of imatinib treatment is determined individually for each patient, there are no guidelines that standardize the treatment course for treating SC. In further calculations the regimens with capecitabine and tegafur were compared. It has been found that the cost of treatment with tegafur per a patient is $93; it is 5 times less than the cost of capecitabine treatment that is $466 (Table 1).

Assessment of the main list of standard regimens for CRC ChT has revealed that from the standpoint of minimizing the cost of treatment it is more appropriate to use the De Gramont regimen (Ca folinate + fluorouracil 2) compared to the Mayo regimen, which cost is further calculations the regimens with capecitabine and tegafur were compared. It has been found that the cost of treatment with tegafur per a patient is $93; it is 5 times less than the cost of capecitabine treatment that is $466 (Table 1).

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<table>
<thead>
<tr>
<th>No.</th>
<th>Regimen</th>
<th>Costs of treatment per one course of one patient, UAH/$*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mayo: Fluorouracil (single dose 425 mg/m², course dose – 2125 mg/m²) Ca folinate (single dose 20 mg/m², course dose – 100 mg/m²)</td>
<td>5 671,9 / $ 710</td>
</tr>
<tr>
<td>2</td>
<td>Fluorouracil (single dose 300 mg/m², course dose – 1500 mg/m²)</td>
<td>2 442,4 / $ 306</td>
</tr>
<tr>
<td>3</td>
<td>Doxorubicine (single dose 40 mg/m²)</td>
<td>204,05 / $ 25,6</td>
</tr>
<tr>
<td>4</td>
<td>Cisplatine (once 40 mg/m²)</td>
<td>238,39 / $ 30</td>
</tr>
</tbody>
</table>

The additional list of regimens

<table>
<thead>
<tr>
<th>No.</th>
<th>Regimen</th>
<th>Costs of treatment per one course of one patient, UAH/$*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Capecitabine (2000 mg twice a day, per os, 14 days)</td>
<td>3 726,6 / $ 466</td>
</tr>
<tr>
<td>2</td>
<td>Tegafur (1200 mg/day, per os, 20 days)</td>
<td>745,8 / $ 93</td>
</tr>
<tr>
<td>3</td>
<td>Imatinib (400-600 mg/day; duration is determined individually)</td>
<td>-</td>
</tr>
</tbody>
</table>

* 1 USD corresponds to 7,993 UAH (as of October 2013)
As evidenced by the calculations, among the regimens of SC ChT the use of doxorubicin is characterized by the lowest cost – CEA corresponds to 12 USD for one patient per course of treatment. At the same time it should be noted that the highest cost of the efficacy unit in SC ChT corresponds to the basic regimen – Mayo which according to clinical studies demonstrates the highest effectiveness in the treatment of SC.

The lowest cost per unit of clinical effectiveness (probability of achieving the objective effect) in ChT of CRC corresponds to the use of the tegafur monoregimen, which is referred to the additional list of CRC regimens – CEA is 25 UAH for one patient per course of treatment. The IFI regimen (irinotecan, calcium folinate, fluorouracil) has the highest indexes of clinical effectiveness and the cost of unit of CRC therapy effectiveness. Therefore, the results of the study should be used considering the priority of treatment – either from the standpoint of the highest efficacy, or with the purpose of rationalization and optimization of costs based on the ratio of the cost of therapy to its clinical efficacy.

CONCLUSIONS

1. It has been found that for SC treatment in Ukraine the current legislation provides for seven standard regimens of chemotherapy, for CRC therapy there are also seven standard regimens used.

2. The research results of standard SC regimens by the “cost – minimization” analysis indicate that it is the most appropriate to use doxorubicin (204.5 UAH, or $ 25.6); its cost of treatment is almost 28 times lower than the cost of treatment with the standard regimen of the Mayo clinic.

3. From the standpoint of minimizing the cost of treatment it has been determined that among the standard CRC chemotherapy the monoregimen with tegafur is the most appropriate, the cost of treatment of one patient is 472, 34 UAH, or $ 60. Possible savings can range from
5,57 thousand UAH (compared to the Mayo regimen) to 18.4 thousand UAH (compared to the Ifl regimen), or 0.7-2.3 thousand $ per a course of treatment for one patient with CRC.

4. The analysis by “cost – effectiveness” method allows to calculate that among the standard SC regimens of Cht the doxorubicin monoregimen is characterized by the lowest costs of the unit of clinical effectiveness (probability of achieving the objective effect) (CEA corresponds to 12 UAH for a patient per one course of treatment); among the CRC regimens of treatment the tegafur monoregimen is the best (CEA is 25 UAH for a patient per one course of treatment).

Thus, our study has allowed to determine the regimens for chemotherapy of SC and CRC, which use is the most appropriate in order to minimize costs and the regimens, which use is the most rational from the standpoint of the ratio of the cost and clinical effectiveness. The results of the present study can be used in planning of the drug purchasing at the level of government institutions and by patients to select the optimal therapy for the treatment at their own expense.

REFERENCES


первые места в структуре онкологической смертности – рака желудка и рака прямой кишки. Проанализирована действующая нормативная база относительно подходов к лечению, а именно, установлено, что для лечения рака желудка в Украине предусмотрено использование семи стандартных схем терапии, из которых четыре схемы включены в основной перечень схем лечения; для рака прямой кишки также рекомендуется использование семи стандартных режимов терапии, из которых две схемы (режима) отнесены к основному перечню. В представленном исследовании приведены стандартные схемы основного и дополнительного перечней для лечения указанных заболеваний. Авторами обобщены полученные результаты исследования стандартных схем химиотерапии рака желудка и рака прямой кишки методами фармакоэкономического анализа «минимизация стоимости» и «стоимость – эффективность». Установлено, что с позиции экономии среди стандартных схем лечения рака желудка наиболее целесообразно применение доксорубицина в монорежиме, для лечения рака прямой кишки – тегафура, а также приведены объемы возможной экономии в расчете на курс лечения для одного больного. Определено, что в соотношении стоимость – эффективность терапии наиболее рациональным в лечении рака желудка также является применение доксорубицина, а в лечении рака прямой кишки – тегафура. Таким образом, полученные результаты позволяют выбрать схему терапии с учетом потребности в экономии средств, что является крайне актуальным в условиях дефицита финансирования здравоохранения.