Economic and humanistic outcomes associated with treatment of recurrent or metastatic cervical cancer: a literature review

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INTRODUCTION

• Cervical cancer is the third leading cause of cancer deaths in women aged 15 to 44 years in the US. The 5-year survival rate in the US is only 72.7% in women diagnosed with metastatic disease.

• According to the National Comprehensive Cancer Network guidelines, cisplatin (or carboplatin) plus paclitaxel plus bevacizumab is the preferred regimen for first-line treatment of recurrent or metastatic disease. The preferred second-line therapy is pembrolizumab for PD-L1-positive or microsatellite instability-high/mismatch repair-deficient tumors. For patients without these biomarkers, bevacizumab or non-platinum based chemotherapy is recommended.

• The objectives of this review are to summarize the economic and humanistic burden associated with the treatment of patients with recurrent or metastatic cervical cancer.

METHODS

• A systematic literature review was conducted in MEDLINE and Embase (January 2010–April 2020) for any published studies.

• The following criteria were used:

  1. Key inclusion criteria
  2. Patients with recurrent/metastatic cervical cancer
  3. – Functional Assessment of Cancer Therapy–Gynecologic Oncology Group–Neutropenia (FACT/GOG-Nc, n=2)
  4. European Organization for Research and the Treatment of Cancer (EORTC) QLQ-C30 (n=1)

  • Patients had physical, emotional, social, and functional well-being and experienced mucositis/diabetes–retractable tumors. For patients without these biomarkers, bevacizumab or non-platinum based chemotherapy is recommended.

  • The objectives of this review are to summarize the economic and humanistic burden associated with the treatment of patients with recurrent or metastatic cervical cancer.

RESULTS

Search results and study characteristics

• 1,411 abstracts were screened, 75 were related to the interventions of interest, including 12 that included outcomes of interest

• 12 publications were included:
  1. – regarding metastatic recurrent disease
  2. – regarding metastatic recurrent disease

• Line of therapy was not reported for most publications; only 1 study specifically focused on first-line treatment, and 1 specifically focused on second-line treatment.

• In studies that reported age, over 50% of patients were between 40 and 59 years old.

• Outcomes were assessed as follows:
  1. – reported humanistic outcomes in the US; 1 in the UK
  2. – reported healthcare resource use outcomes (Republic of Korea)

Hemorrhagic outcomes (Table 2)

• The following interventions were studied:
  1. – Topotecan plus cisplatin (n=2)
  2. – Bevacizumab plus chemotherapy (n=1)
  3. – Cefadrox plus chemotherapy (n=1)

  • The following instruments were used to assess PROs:
  1. – Functional Assessment of Cancer Therapy–Gynecologic Oncology Group–Neutropenia (FACT/GOG-Nc, n=2)
  2. – Brief Pain Inventory (n=3)

  • Functional Assessment of Cancer Therapy–Gynecologic Oncology Group–Neutropenia (FACT/GOG-Nc, n=2)
  3. – European Organization for Research and the Treatment of Cancer (EORTC) QLQ-C30 (n=1)

  • Patients had physical, emotional, social, and functional well-being and experienced mucositis/diabetes–retractable tumors. For patients without these biomarkers, bevacizumab or non-platinum based chemotherapy is recommended.

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Table 2. Summary of PROs

<table>
<thead>
<tr>
<th>Intervention</th>
<th>FACT/GOG-Nc</th>
<th>BPI</th>
<th>FACT/Cx Physical Well-being</th>
<th>FACT/Cx Emotional Well-being</th>
<th>FACT/Cx Functional Well-being</th>
<th>FACT/Cx General Well-being</th>
<th>FACT/Cx Pain</th>
<th>FACT/Cx Symptoms</th>
<th>FACT/Cx Toxicity</th>
<th>FACT/Cx Global Health</th>
<th>FACT/Cx Pain</th>
<th>FACT/Cx Symptoms</th>
<th>FACT/Cx Toxicity</th>
<th>FACT/Cx Global Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topotecan + cisplatin</td>
<td>21.6</td>
<td>3.6</td>
<td>63.2</td>
<td>68.1</td>
<td>69.6</td>
<td>71.7</td>
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</tr>
</tbody>
</table>

Economic outcomes (Table 3)

• Cisplatin plus paclitaxel (CP) was found to be cost-effective or dominant in 1.8% (incremental cost per quality-adjusted life-year (QALY) $11,647/month, higher than the actual cost.

• CP dominated all other examined regimens (cisplatin plus topotecan (CT), cisplatin plus gemcitabine (CG), cisplatin plus vinorelbine (CV) in US analysis) and was cost-effective compared with cisplatin alone in another US study (incremental cost per QALY $13,854).

• Drug cost for topotecan plus cisplatin accounted for one-third of the total cost of treatment in the US study (one third of the overall survival) but was not considered cost-effective (incremental cost per life-year ranged from $107,281 to $260,362).

• The American Society of Clinical Oncology (ASCO) Value Framework suggested that adding bevacizumab to chemotherapy as a second-line therapy provided a modest net health benefit but was associated with a significantly higher cost.

Table 3. Summary of economic outcomes

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Life-months</th>
<th>Life-years</th>
<th>Incremental cost per life-month</th>
<th>Incremental cost per life-year</th>
<th>Incremental cost per life-year (2019 US$)</th>
<th>Incremental cost per QALY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topotecan + cisplatin</td>
<td>17</td>
<td>13.3</td>
<td>$107,281</td>
<td>$260,362</td>
<td>$28,101,000</td>
<td>$23,187,571</td>
</tr>
<tr>
<td>Bevacizumab plus chemotherapy</td>
<td>18.5</td>
<td>15</td>
<td>$115,647</td>
<td>$288,940</td>
<td>$28,101,000</td>
<td>$23,187,571</td>
</tr>
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<td>18.5</td>
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Healthcare resource use outcomes (Table 4)

• The total number of emergency department visits due to an AE was similar between regimens with and without bevacizumab.

• Differences were observed between regimen in number of emergency department visits related to urinary tract infection and neutropenic fever.

Table 4. Summary of healthcare resource use outcomes

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Emergency department visits</th>
<th>Urinary tract infection</th>
<th>Neutropenic fever</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topotecan + cisplatin</td>
<td>11</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Bevacizumab plus chemotherapy</td>
<td>11</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Cefadrox plus chemotherapy</td>
<td>11</td>
<td>2</td>
<td>1</td>
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</tbody>
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CONCLUSIONS

• PRO and economic data in patients with recurrent/metastatic cervical cancer were limited.

• CP therapy was cost-effective compared with other chemotherapies, although chemotherapy plus bevacizumab was not cost-effective despite being recommended as first-line therapy.

• Patients had improved physical, emotional, social, and functional well-being with second-line treatment compared with first-line treatment.

• Procalcitonin was associated with a worse diarrhea score (possible score ranged from 0 to 116, with higher scores indicating improved outcomes).

• No difference was found in overall quality of life, neuromuscular toxicity score, or pain outcomes between treatment arms.

• Cefadrox plus chemotherapy was associated with a worse diarrhea score on EORTC QLC-Q30 compared with chemotherapy alone in patients who were not previously treated.

• Pre-treatment FACT-Cx physical well-being was significantly associated with survival in patients with recurrent, metastatic, and persistent cervical cancer.

Economic outcomes (Table 3)

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ACKNOWLEDGMENT

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DISCLOSURES

Data presented by Brent East, Sarah Zaloudek, Canada, as well as other members Brent East, Sarah Zaloudek, Canada and Gabrielle Wilkins, Canada, on Abstract #0268, Society for Hematology and Oncology, 65th Annual Meeting of the American Society for Hematology, San Diego, CA, December 5–8, 2023.

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