What is New on Debulking and HIPEC in Peritoneal Carcinomatosis in the Last 12 Months?

Marcello Deraco M.D.
Director Peritoneal Surface Malignancies Unit
The current practice of cytoreductive surgery and HIPEC for colorectal peritoneal metastases: Results of a worldwide web-based survey of the Peritoneal Surface Oncology Group International (PSOGI)

M. Bushati a,b, K.P. Rovers a, A. Sommariva c, P.H. Sugarbaker d, D.L. Morris e, Y. Yonemura f, C.A. Quadros g, S.P. Somashekhar h, W. Ceelen i, P. Dubé j, Y. Li k, V.J. Verwaal l, O. Glehen m, P. Piso n, J. Spiliotis n, M.C.C. Teo o, S. Gonzalez-Moreno q, F.H. Cashin p, K. Lehmann p, M. Deraco p, B. Moran p, I.H.J.T. de Hingh a,c

- is a complex procedure with a steep learning curve;
- requires to be done in high volume centers by experienced surgeons;
- is associated with considerable treatment related morbidity and mortality;
- MDT is recognized as a crucial step in selecting appropriate candidates;

430 centers performing CRS and HIPEC in the world.

Marcello Deraco CRS-HIPEC
COLORECTAL CANCER
Peritoneum is the second most common site of recurrence for CRC;

5% of CRC have synchronous PM

Totally 5-10% of patients with CRC develop metachronous PM in the follow-up

>30% of patients with CRC recurrence have PM;

40-50% of patients with CRC-PM the disease is confined to the peritoneum

Median OS when treated with sCT: 12-15 months
Progress in treatments for colorectal cancer peritoneal metastases during the years 2010–2015. A systematic review

Dario Baratti, Shigeki Kusamura, Filippo Pietrantonio, Marcello Guaglio, Monica Nigers, Marcello Deraco

Main characteristics of 13 comparative studies of CRS/HIPEC

<table>
<thead>
<tr>
<th>Center (ref.)</th>
<th>Study period</th>
<th>Pts (no.)</th>
<th>CRS</th>
<th>Study design</th>
<th>Factors of comparison</th>
<th>F-up Median (mos.)</th>
<th>Overall survival Median (mos.)</th>
<th>5-year (%)</th>
<th>P-value</th>
<th>Major morb. (%)</th>
<th>Mort (%)</th>
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<tbody>
<tr>
<td>Villejuif, FR (Goéré et al., 2015)</td>
<td>00-10</td>
<td>129</td>
<td>100%</td>
<td>Controlled</td>
<td>HIPEC or EPIC</td>
<td>60a</td>
<td>34.0</td>
<td>52.0</td>
<td>0.0001</td>
<td>52.5</td>
<td>0.0002</td>
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<td>International (Prada-Villaverde et al., 2014)</td>
<td>85-12</td>
<td>418</td>
<td>94.2%</td>
<td>CCRO/1</td>
<td>Controlled</td>
<td>MMC-based HIPEC</td>
<td>32.7</td>
<td>5.0</td>
<td>0.042</td>
<td>19.5</td>
<td>4.9</td>
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<td>International (Esquivel et al., 2014)</td>
<td>85-12</td>
<td>609</td>
<td>93.4%</td>
<td>CCRO/1</td>
<td>Controlled</td>
<td>OXLI-based HIPEC</td>
<td>31.4</td>
<td>-</td>
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<td>Nieuwegen (van Oudheusden et al., 2014)</td>
<td>05-13</td>
<td>36</td>
<td>97.2%</td>
<td>CCRO/1</td>
<td>Controlled</td>
<td>CRS/HIPEC</td>
<td>21</td>
<td>8.0</td>
<td>-</td>
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<td>Eindhoven, NL</td>
<td>04-12</td>
<td>55</td>
<td>97.3%</td>
<td>CCRO/1</td>
<td>Controlled</td>
<td>No CRS</td>
<td>10.0</td>
<td>-</td>
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<tr>
<td>Leuven, BE (Hompes et al., 2014)</td>
<td>04-06</td>
<td>16</td>
<td>100%</td>
<td>CRS/1</td>
<td>Controlled</td>
<td>No CRS</td>
<td>10.0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Villejuif, FR (Braam et al., 2013)</td>
<td>93-09</td>
<td>37</td>
<td>100%</td>
<td>CCRO/1</td>
<td>Matched</td>
<td>OXLI-based HIPEC</td>
<td>47.0</td>
<td>30.0</td>
<td>-</td>
<td>0.015</td>
<td>39</td>
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<tr>
<td>Eindhoven, NL (Braam et al., 2013)</td>
<td>05-12</td>
<td>52</td>
<td>100%</td>
<td>CRS/1</td>
<td>Controlled</td>
<td>PM + liver metastases</td>
<td>47.0</td>
<td>30.0</td>
<td>-</td>
<td>0.015</td>
<td>39</td>
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<tr>
<td>Uppsala, SW (Cashin et al., 2012c)</td>
<td>96-10</td>
<td>69</td>
<td>-</td>
<td>Controlled</td>
<td>Synchr. PM; early HIPEC</td>
<td>33</td>
<td>37.1</td>
<td>54.0</td>
<td>0.32</td>
<td>48.7</td>
<td>NS</td>
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<tr>
<td>Uppsala, SW (Cashin et al., 2012b)</td>
<td>93-08</td>
<td>16</td>
<td>100%</td>
<td>CRS/1</td>
<td>Matched</td>
<td>Synchr. PM; early HIPEC</td>
<td>45</td>
<td>40.0</td>
<td>-</td>
<td>0.047</td>
<td>40.6</td>
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<tr>
<td>Sidney, AU (Chua et al., 2013)</td>
<td>96-11</td>
<td>45</td>
<td>100%</td>
<td>CRS/1</td>
<td>Controlled</td>
<td>Synchr. PM; delayed HIPEC</td>
<td>45</td>
<td>40.0</td>
<td>-</td>
<td>0.047</td>
<td>40.6</td>
</tr>
<tr>
<td>Villejuif (Anon, 2016d)</td>
<td>98-07</td>
<td>43</td>
<td>74.4%</td>
<td>CCRO/1</td>
<td>Controlled</td>
<td>HIPEC &amp; EPIC</td>
<td>38</td>
<td>23.9</td>
<td>-</td>
<td>0.001</td>
<td>37.4</td>
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<tr>
<td>Pittsburgh, PA (Franko et al., 2010)</td>
<td>01-07</td>
<td>67</td>
<td>84.2%</td>
<td>CRS/1</td>
<td>Controlled</td>
<td>OXLI-based HIPEC</td>
<td>48.5</td>
<td>40.8</td>
<td>41.8</td>
<td>0.04</td>
<td>34.9</td>
</tr>
</tbody>
</table>

Marcello Deraco CRS-HIPEC
Main comparative studies of CRS/HIPEC

Verwaal JCO 2003
Elias JCO 2009
Franko Cancer 2010
Chua Ann Surg Oncol 2011

Marcello Deraco CRS-HIPEC
The question:

What is the real role of the two different component of the treatment:

• HIPEC
• CRS
**RCT: Role of HIPEC after CCR0/1 for PM from CRC**

**PRODIGE 7**

PM CRC PCI<25 ▸ Pts: 265 ▸ CRS Cc-0/1 ▸ HIPEC ▸ NO HIPEC ▸ sCT 6 months pre/post/both CRS HIPEC

**END POINT:**

- **Primary:** Overall Survival (OS). To increase median OS from 30 to 48 months (HR 0.625)
- **Secondary:** Recurrence Free Survival (RFS), Toxicity, Morbidity

 Marcello Deraco CRS-HIPEC
Phase III RCT: role of HIPEC after CCR0/1 for PC from CRC: PRODIGE 7

Flow Chart

- Assessed for eligibility (n=396)
  - Excluded (n=131)
    - Not meeting inclusion criteria (n=118)
      - 58 PCI>25
      - 25 No macroscopic PC
      - 11 Non-resectable
      - 10 Liver metastases
      - 8 General contra-indication
      - 4 R2 > 1 mm
      - Withdrawal (n=5)
      - Other reasons (n=10)
  - Randomized (n=265)
    - From Feb 2008 to Feb 2014

- ITT
  - HIPEC (n=133)
    - Received allocated intervention (n=133)
    - Did not receive systemic chemotherapy (n=7)
  - Per Protocol Population (n=129)
    - 4 Major violations
      - 2 Second cancer
      - 2 Presence of extra peritoneal metastases

- Non-HIPEC (n=132)
  - Received allocated intervention (n=132)
  - Did not receive systemic chemotherapy (n=5)
  - Per Protocol Population (n=113)
    - 3 Major violations
      - 2 Non-coelocatal carcinomatosis
      - 1 No carcinomatosis
    - 16 Cross Over: HIPEC performed after relapse

Enrollment PRE-OPERATIVELY
Allocation INTRA-OPERATIVELY
Phase III RCT: role of HIPEC after CCR0/1 for PC from CRC: PRODIGE 7

Median Follow Up: 64 months [95% CI:58.9-69.8]

<table>
<thead>
<tr>
<th></th>
<th>HIPEC</th>
<th>Non-HIPEC</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median Survival</td>
<td>41.7</td>
<td>41.2</td>
<td>0.995</td>
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<tr>
<td>(months) [95% CI]</td>
<td>[36.2-52.8]</td>
<td>[35.1-49.7]</td>
<td></td>
</tr>
<tr>
<td>1-year Survival</td>
<td>86.9%</td>
<td>88.3%</td>
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<tr>
<td>5-year Survival</td>
<td>39.4%</td>
<td>36.7%</td>
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</table>

HR=1.00: 95%CI [0.73 - 1.37] p=0.995

<table>
<thead>
<tr>
<th></th>
<th>HIPEC</th>
<th>Non-HIPEC</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median Survival</td>
<td>13.1</td>
<td>11.1</td>
<td>0.486</td>
</tr>
<tr>
<td>(months) [95% CI]</td>
<td>[12.1-15.7]</td>
<td>[9.0-12.7]</td>
<td></td>
</tr>
<tr>
<td>1-year Survival</td>
<td>59.0%</td>
<td>46.1%</td>
<td></td>
</tr>
<tr>
<td>5-year Survival</td>
<td>14.8%</td>
<td>13.1%</td>
<td></td>
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</tbody>
</table>

HR=0.908: 95%CI [0.69-1.19] p=0.486

Marcello Deraco CRS-HIPEC
Phase III RCT: role of HIPEC after CCR0/1 for PC from CRC: PRODIGE 7

Marcello Deraco CRS-HIPEC
• **Overestimation of the effect size** in the design of the trial with improvement in median OS was 18 months (from 30 to 48 months);

➢ The magnitude of the estimated treatment effect was based on the limited sample size;

➢ The desired improvement in median OS in systemic therapy trials is usually around 5 months;

• The choice of the **primary endpoint**: CRS/HIPEC is a locoregional treatment of PM. Peritoneal recurrence free survival or an equivalent endpoint may have been more appropriate.
**Inclusion Criteria**

- Histologically confirmed colorectal cancer
- Absence of extra peritoneal metastases including hepatic and pulmonary metastases
- Peritoneal Cancer Index (PCI) < 25
- Macroscopically complete (R0/R1) or with residual tumor tissue ≤ 1mm (R2)
- All patients had to be treated with systemic chemotherapy for 6 months
- Patients non previously treated with HIPEC
- Patients aged ≥ 18 and ≤ 70 years old

**Criticisms**

- No Histological selection
- >17 PCI Admitted
- No Biological selection
- Treatment with Oxaliplatin
The current practice of cytoreductive surgery and HIPEC for colorectal peritoneal metastases: Results of a worldwide web-based survey of the Peritoneal Surface Oncology Group International (PSOGI)

M. Bushati a, b, K.P. Rovers a, A. Sommariva c, P.H. Sugarbaker d, D.L. Morris e, Y. Yonemura f, C.A. Quadros g, S.P. Somashekhar h, W. Ceelen i, P. Dubé j, Y. Li k, V.J. Verwaal l, O. Glehen m, P. Piso n, J. Spiliotis o, M.C.C. Teo p, S. González-Moreno q, P.H. Cashin r, K. Lehmann s, M. Deraco t, B. Moran u, I.H.J.T. de Hingh v

Eligibility

Full:
PCI ≤ 16, CC-0/1,
Fit, Age ≤ 70

Relative:
• Treatable liver M+
• Asymptomatic small lung metastases
• Retropertitoneal lymph nodes.

Not:
G3, BRAF mut, N2, Ascites, PCI>16
Unresectable extraperitoneal M+.

3800 worldwide of CRC-PM patients currently being treated with CRS and HIPEC;
# Main characteristics of 6 studies of adjuvant intraperitoneal chemotherapy

<table>
<thead>
<tr>
<th>Author</th>
<th>Study period</th>
<th>Pts (no.)</th>
<th>Eligibility</th>
<th>Study design</th>
<th>Adjuvant intraperitoneal chemotherapy</th>
<th>F-up median(mos.)</th>
<th>Overall survival</th>
<th>Peritoneal relapse</th>
<th>Major morbidity</th>
<th>Mort.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lygidakis et al. (2010)</td>
<td>85-06</td>
<td>31</td>
<td>Rectal cancer N+, neurovascular involvement</td>
<td>Controlled</td>
<td>Lap. HIPEC × 3 day 22, 47, 730 (SFU/OX/IRI)</td>
<td>NR</td>
<td>100&lt;sup&gt;1&lt;/sup&gt;</td>
<td>3.0&lt;sup&gt;2&lt;/sup&gt;</td>
<td>0&lt;sup&gt;2&lt;/sup&gt;</td>
<td>0</td>
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<td>Noura et al. (2011)</td>
<td>85-06</td>
<td>31</td>
<td>Positive peritoneal washing cytology</td>
<td>Prosp. series</td>
<td>EPIC (MMC) day 1</td>
<td>83.1</td>
<td>88.0&lt;sup&gt;3&lt;/sup&gt;</td>
<td>0.0001</td>
<td>54.3&lt;sup&gt;3&lt;/sup&gt;</td>
<td>0.001</td>
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<tr>
<td>Tentes et al. (2011)</td>
<td>99-04</td>
<td>67</td>
<td>T3/T4</td>
<td>Controlled</td>
<td>No EPIC</td>
<td>28.0</td>
<td>40.1&lt;sup&gt;3&lt;/sup&gt;</td>
<td>0.094&lt;sup&gt;4&lt;/sup&gt;</td>
<td>9.5&lt;sup&gt;4&lt;/sup&gt;</td>
<td>0.027&lt;sup&gt;7&lt;/sup&gt;</td>
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<td>Virzi et al. (2013)</td>
<td>06-10</td>
<td>12</td>
<td>T4, ovarian/perit M, positive peritoneal washing cytology</td>
<td>Prosp. series</td>
<td>HIPEC (MMC/OX)</td>
<td>17.0</td>
<td>60.0&lt;sup&gt;3&lt;/sup&gt;</td>
<td>&gt;0.011</td>
<td>28.0</td>
<td>0.009</td>
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<td>Sammartino et al. (2012)</td>
<td>06-08</td>
<td>25</td>
<td>T3/T4, mucinous</td>
<td>Matched</td>
<td>HIPEC (OX)</td>
<td>NR</td>
<td>59.5&lt;sup&gt;6&lt;/sup&gt;</td>
<td>0.04</td>
<td>4.0</td>
<td>&lt;0.03</td>
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<td>Sloothaak et al. (2014b)</td>
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<td>T4, ovarian/perit M, positive peritoneal washing cytology Perforation/obstruct</td>
<td>Prosp. series</td>
<td>HIPEC (MMC)</td>
<td>13.0</td>
<td>52.0&lt;sup&gt;6&lt;/sup&gt;</td>
<td>28.0</td>
<td>8.0</td>
<td>8.0</td>
</tr>
</tbody>
</table>

<sup>1</sup> Peritoneal Malignancy Program, Fondazione IRCCS Istituto Nazionale Tumori, via Venezian, 1 20133 Milano, Italy

<sup>2</sup> Medical Oncology Department, Fondazione IRCCS Istituto Nazionale Tumori, via Venezian, 1 20133 Milano, Italy
RCT: Evaluating the potential benefit of a second-look surgery plus HIPEC in patients at high risk of developing colorectal peritoneal metastases (PROPHYLOCHIP- NTC01226394).

**END POINT:**

- **Primary:** 3-year disease-free survival (DFS);
- **Secondary:** overall survival (OS), peritoneal DFS and postoperative complications

Marcello Deraco CRS-HIPEC
Randomization: 2012 and 2015
150 patients
Follow-up of 51 [47-55] months

Second-look laparotomy with HIPEC (n = 71)
CRPM 52% (CRS)
Relapse 24 (32%) ➔ CRS HIPEC n=2
3-year DFS: 44% [33-56] (p = 0.75).
3-year OS 79% [68-87] ns

Follow-up (n=69)
Relapse: 25 (33%) CRS-HIPEC in 16
3-year DFS: 51% [40-62] (p = 0.75).
3-year OS 80% [69-88] ns

Conclusion: pro-active strategy including a systematic second-look surgery plus HIPEC failed to improve survival, in comparison to an adequate surveillance.

Marcello Deraco CRS-HIPEC
RCT: Adjuvant HIPEC in High Risk Colon Cancer (COLOPEC NCT02231086)

**Up-front:** T4, Perforated

- Colectomy + HIPEC (OX) (5-8 WEEKS)

- Colectomy

- Adj sCT XELOX/FOLFOX

Second Look VLS 18 months from Surgery

**END POINT:**

- **Primary:** Peritoneal Recurrence Free Survival at 18 months

- **Secondary:** adverse events, incidence of PC at end of follow-up, percentage of false negative CT at 18 months (second look laparoscopy/laparotomy as gold standard), disease-free survival, overall survival, quality of life and costs.
Randomization: 202 patients follow-up of 51 [47-55] months

HIPEC (n = 100)
PRFS = 81.8%

Follow-up (n=102)
PRFS = 76.78%

**Conclusion:** Adjuvant HIPEC does not result in better 18 months PRFS in patient with CRC at high risk to develop PM
**Oxaliplatin** is the HIPEC drug **used in all RCT** because is considered one of the standard drugs in the treatment of locally advanced and metastatic CRC;

Dextrose 5% perfusate volume of 2 L/m2 and a dose of 360-460 mg/m2, resulting in a peritoneal oxaliplatin **concentration of 210-230 µg/ml**;

In mucinous histology, which is more common in PM, response rates after first line therapy as **low as 18%** were observed;

Previous sCT regimens may induce **alterations** in the cancer cell genome and in **OX sensitivity**;

Whether the high peritoneal drug concentrations during HIPEC can overcome genetically determined resistance mechanisms in colorectal cancer cells is unclear.
• SW620 CRC cells
• Maximum effect (Emax);
• Concentration to inhibit 50% of cell growth (IC50)

IC50 Normal vs Iper Thermia:
37°C = 2.90±0.83 µg/ml
42°C = 1.99±0.66 µg/ml (P=0.14)

IC50 30 vs 120min:
30 min = 10.6±0.60 µg/ml
120 min = 2.80±1.70 µg/ml (P=0.02)
D5% causes:

• Metabolic and electrolyte shifts including hyperglycemia and hyponatremia, which may exacerbate surgical morbidity;

• Glucose degradation products (GDP) have adverse effects on the ultrastructure and function of the peritoneum by the production of transforming growth factor-beta1 (TGF-b1), which is implicated in the pathogenesis of peritoneal carcinomatosis;

• The acidic pH of D5% solution (3.2-6.5) adversely affects mesothelial cell production of interleukin-6 and prostaglandin, and may therefore interfere with peritoneal host defense.
The American Society of Peritoneal Surface Malignancies Evaluation of HIPEC with Mitomycin C Versus Oxaliplatin in 539 Patients with Colon Cancer Undergoing a Complete Cytoreductive Surgery

ARANCIA PRADA-VILLAVERENDE, MD,1 JESUS ESQUIVEL, MD,2* ANDREW M. LOWY, MD,2 MAURIE MARKMAN, MD,4 TERENCE CHUA, MD,5 JOERG HELZ, MD,3 DARIO BARATTI, MD,7 JOEL M. BAUMGARTNER, MD,4 RICHARD BERRE, MD,5 PEDRO BRENCH-BORG, MD,10 MARCELLO DERACO, MD,7 GUILLERMO FLORES-AYALA, MD,10 OLIVIER BRIEU, MD,11 ALBERTO GOMEZ-PORTELA, MD,12 SANTIAGO GONZALEZ-MORENO, MD,13 MARTIN GOODMAN, MD,14 EVGENIA HAKIA, MD,15 SHIGEHIRO KUSAMURA, MD,7 MECKER MOLLER, MD,16 GUILLAUME PASSOT, MD,11 MARC POCAK, MD,17 GEORGE SALT, MD,18 ARMANDO SARDI, MD,19 MAHESHWARI SENGHER, MD,20 JOHN SPIELOIS, MD,15 JUAN TORRES-MERLERO, MD,21 KIRAN TURAGA, MD,22 AND RICHARD TROUT, MD,23

Fig. 2. Survival analysis of 539 patients with a complete cytoreductive surgery comparing HIPEC with MMC vs. Oxaliplatin.

Fig. 3. Survival analysis of 303 patients with a PSDS I or II and a complete cytoreductive surgery comparing HIPEC with MMC vs. Oxaliplatin.

TABLE IV. Analysis of Agent Comparison with Respect to Survival* for Patients with Complete Cytoreductive Surgery (CC0/CC1) by PSDSS Groups

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>PSDSS group 1/2</th>
<th>PSDSS group 3/4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agent</td>
<td>N</td>
<td>Median survival* (95CI%)</td>
</tr>
<tr>
<td>Oxaliplatin</td>
<td>71</td>
<td>28.2 (23.7–NR)</td>
</tr>
<tr>
<td>Mitomycin C</td>
<td>232</td>
<td>54.3 (37.5–76.4)</td>
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</tbody>
</table>

*Median survival based on Kaplan-Meier analysis. **P-Value calculated using log-rank test.
Hyperthermic Intraperitoneal Chemotherapy in Ovarian Cancer

Should a History of Extraperitoneal Disease Be a Contraindication to Cytoreductive Surgery and Hyperthermic Intraperitoneal Chemotherapy for Colorectal Cancer Peritoneal Metastases?

Dario Baratti, M.D.¹ • Shigeki Kusamura, M.D., Ph.D.¹ • Domenico Iusco, M.D., Ph.D.²  
Christian Cotsoglou, M.D.³ • Marcello Guaglio, M.D.¹ • Luigi Battaglia, M.D.¹  
Salvatore Virzì, M.D.² • Vincenzo Mazaferro, M.D., Ph.D.³,⁴ • Marcello Deraco, M.D.¹

148 patients with peritoneal metastases; 27 patients with extraperitoneal disease

**Survival probability**

- **PM alone**: median = 60.1 mo  
- **PM + EP**: median = 19.0 mo

\[ p \text{ (log-rank test)} = 0.019. \]

**Survival probability**

- **PCI ≤19 and no EP**:  
  5-year OS = 59.3%; median not reached
- **PCI ≤8 and EPD**:  
  median OS: 27.0 mo
- **PCI >19 no EPD or PCI >8 and EPD**:  
  Median OS: 11.6 mo

\[ p \text{ (log-rank test)} = 0.001. \]
GASTRIC CANCER
Cytoreductive Surgery With or Without Hyperthermic Intraperitoneal Chemotherapy for Gastric Cancer With Peritoneal Metastases (CYTO-CHIP study): A Propensity Score Analysis

Median OS

HIPEC: 18.8 m
No HIPEC: 12.1 m

5 yr DFS

HIPEC: 20.4%
No HIPEC: 5.9%
RCT: Peritoneal Metastasis (PM) from Gastric Cancer (GC)

GASTRIPEC

Laparoscopy: Resectable PM

sCTX3 : EOX/CX ± Trastuzumab

CRS
HIPEC(CDDP+MIT-C)
sCT

sCTX3 : EOX/CX ± Trastuzumab

CRS
sCT

Closed for lack of accrual
RCT: Adjuvant HIPEC to prevent Peritoneal Metastasis from Gastric Cancer

GASTRICHIP (PRIDIGE 36)

Laparoscopy and EUS uT3-T4 and/or N+ and/or cyto +

Ongoing

Ndj sCT

Gastrectomy D1 D2

HIPEC+ (OX) sCT
153 pts

HIPEC- sCT
153 pts

Marcello Deraco CRS-HIPEC
APPENDICEAL NEOPLASM AND PSEUDOMYXOMA PERITONEI
Validation of the Recent PSOGI Pathological Classification of Pseudomyxoma Peritonei in a Single-Center Series of 265 Patients Treated by Cytoreductive Surgery and Hyperthermic Intraperitoneal Chemotherapy

Dario Baratti, MD, Shigeki Kusumara, PhD, Massimo Milione, MD, Federica Bruno, MD, Marcello Guagli, MD, and Marcello Deraco, MD

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<td>PSOGI classification of appendiceal lesions</td>
<td>Normal</td>
<td>25 (9.4)</td>
<td>2 (7.7)</td>
<td>17 (8.6)</td>
<td>5 (13.1)</td>
<td>1 (25.0)</td>
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<td></td>
<td>Not available</td>
<td>11 (4.2)</td>
<td>0</td>
<td>8 (4.1)</td>
<td>3 (7.9)</td>
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<td>Replaced</td>
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<td>15 (7.6)</td>
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<tr>
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<td>1 (0.5)</td>
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DOES HYPERTERMIC INTRAPERITONEAL CHEMOTHERAPY HAS AN ADDITIONAL BENEFIT OVER CYTOREDUCTION ALONE IN PSEUDOMYXOMA PERITONEI? A PROPENSITY SCORE ANALYSIS OF THE PSOGI DATABASE


PSOGI Registry PMP
Total Patients: 1,924;
No HIPEC Patients: 300

Log rank, p=0.0001

HIPEC
5 year OS: 58%

No HIPEC
5 year OS: 46%
• In the last 12 months results of RCT on CRS HIPEC in patients with CRC clarified that:

  ➢ **CRS/HIPEC** in addition to sCT **optimize outcomes** in patients with PM-CRC compared to sCT alone. **Surgical treatment** of PM-CRC showed **unexpected satisfactory results**;

  ➢ The addition of **HIPEC with Oxaliplatin** at the best CRS does not optimize outcomes in PM-CRC except in patients with **moderate PM-CRC volume (PCI 11-15)**

  ➢ HIPEC **failed** to optimize outcomes in a **prophylactic or pro-active setting** in CRC;

  ➢ A critical analysis regarding the use of oxaliplatin is currently open. Additional Randomized studies should further investigate the single role of HIPEC using other drugs (Cisplatin/Mitomicyn C).

• CRS-HIPEC is the standard treatment **in patients with appendiceal neoplasm and PMP**. HIPEC showed significant **efficacy**;

• Selected patients with PM of gastric cancer could benefit of HIPEC
THANK YOU FOR YOUR ATTENTION