Minimizing Futile Laparotomies at Primary Cytoreduction for Advanced Ovarian Cancer:
A Feasibility Study Comparing Management Algorithms

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Fellow | Memorial Sloan Kettering Cancer Center, NY
Financial Disclosures

I have no financial relationships with ACCME defined ineligible companies to report
Unlabeled/Investigational Uses

I will not be discussing any unlabeled or investigational uses of any pharmaceutical products or medical devices.
78% of patients with ovarian cancer will have regional and/or distant spread at presentation\(^a\)
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\(^a\)SEER 17 2012–2018, All Races, Women by SEER Combined Summary Stage
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\(^a\)SEER 17 2012–2018, All Races, Women by SEER Combined Summary Stage
Volume of residual disease following cytoreduction is one of the most important factors for overall survival.
A multicenter prospective trial evaluating the ability of preoperative computed tomography scan and serum CA-125 to predict suboptimal cytoreduction at primary debulking surgery for advanced ovarian, fallopian tube, and peritoneal cancer.

Rudy S. Suidan a, Pedro T. Ramirez b, Debra M. Sarsohn c, Jerrold B. Teitcher c, Svetlana Mironov c, Revathy B. Iyer d, Qin Zhou e, Alexia Jasonos e, Harold Paul a, Masayoshi Hosaka b, Carol A. Aghajanian f,g, Mario M. Leitao Jr. a,k, Ginger J. Gardner a,j, Nadeem R. Abu-Rustum a,j, Yukio Sonoda a,j, Douglas A. Levine a,j, Hedvig Hricak c, Dennis S. Chi a,j,k

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f Gynecologic Medical Oncology Service, Department of Medicine, MSKCC, New York, NY, USA
g Weill Cornell Medical College, New York, NY, USA
A multicenter assessment of the ability of preoperative computed tomography scan and CA-125 to predict gross residual disease at primary debulking for advanced epithelial ovarian cancer

Rudy S. Suidan a,b, Pedro T. Ramirez b, Debra M. Sarasohn c, Jerrold B. Teitcher c, Revathy B. Iyer d, Qin Zhou e, Alexia Iasonos e, John Denesopolis a, Oliver Zivanovic a,f, Kara C. Long Roche a,f, Yukio Sonoda a,f, Robert L. Coleman b, Nadeem R. Abu-Rustum a,f, Hedvig Hricak e, Dennis S. Chi a,f,e

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f Weill Cornell Medical College, New York, NY, United States
A multimodality triage algorithm to improve cytoreductive outcomes in patients undergoing primary debulking surgery for advanced ovarian cancer: A Memorial Sloan Kettering Cancer Center team ovary initiative☆

Alli M. Straubhar a, Olga T. Filippova a, Renee A. Cowan a, Yulia Lakhman b, Debra M. Sarasohn b, Ines Nikolovski b, Jean M. Torrisi b, Weinong Ma b, Nadeem R. Abu-Rustum a,c, Ginger J. Gardner a,c, Yukio Sonoda a,c, Oliver Zivanovic a,c, Dennis S. Chi a,c, Kara Long Roche a,c,e

☆ Gynecology Service, Department of Surgery, Memorial Sloan Kettering Cancer Center, New York, NY, USA
b Department of Radiology, Memorial Sloan Kettering Cancer Center, New York, NY, USA
c Department of Obstetrics & Gynecology, Weill Cornell Medical College, New York, NY, USA
HOW DID WE GET HERE

PRESENT DAY

2014

2017

2020
OBJECTIVE

Perform a prospective feasibility study investigating the triage of patients with suspected advanced ovarian cancer to primary cytoreductive surgery versus diagnostic laparoscopy or neoadjuvant chemotherapy.
METHODS

- July 2021 to July 2022
METHODS

- July 2021 to July 2022
- Identified patients with suspected advanced OC who underwent primary management at our institution
METHODS

- July 2021 to July 2022
- Identified patients with suspected advanced OC who underwent primary management at our institution
- Utilized a **standardized radiology synoptic report** with clinical characteristics
METHODS

- July 2021 to July 2022
- Identified patients with suspected advanced OC who underwent primary management at our institution
- Utilized a standardized radiology synoptic report with clinical characteristics
- We compared the performance of two different previously reported RS algorithms (RS1 and RS2)
## RS1 (est. 2014)

<table>
<thead>
<tr>
<th>Radiology Variable</th>
<th>Size</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lesser Sac lesion</td>
<td>If ≥1cm</td>
<td>4</td>
</tr>
<tr>
<td>Left upper quadrant lesion</td>
<td>If ≥1cm</td>
<td>2</td>
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<td>Root of superior mesenteric artery lesion</td>
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<td>Suprarenal paraaortic lymph node</td>
<td>If ≥1cm</td>
<td>1</td>
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<td>If ≥0.5 cm</td>
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</tr>
<tr>
<td>Ascites</td>
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<tr>
<td>Extensive colonic involvement</td>
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<td>If present</td>
<td>0</td>
</tr>
<tr>
<td>Stage IV disease</td>
<td>N/A</td>
<td>0</td>
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### Clinical Variable

| Age ≥60 years                                           | 1             |
| CA-125 ≥500 U/mL                                        | 1             |
| ASA Physical Status Classification System (3-4)          | 3             |
RS1 (est. 2014)

Suspected advanced EOC

Preoperative CT Score
RS1 (est. 2014)

Suspected advanced EOC

Preoperative CT Score

Low Risk (0-6)

PDS

Dx LSC*

PDS

NACT

*Surgeon Preference
RS1 (est. 2014)

Suspected advanced EOC

Preoperative CT Score

High Risk (≥7)

Dx LSC

PDS → NACT
# RS1 (est. 2014)

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### Clinical Variable

| Age ≥60 years                                                      | 1          |
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<tr>
<td>ASA Physical Status Classification System (3-4)</td>
<td>3</td>
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## RS2 (2017 - ongoing)

<table>
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<tbody>
<tr>
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</tr>
<tr>
<td>Supradiaphragmatic lymph node</td>
<td>If ≥0.5 cm</td>
<td></td>
</tr>
<tr>
<td>Small bowel angulation/tethering, diffuse serosa</td>
<td>If present</td>
<td>1</td>
</tr>
<tr>
<td>Gastrohepatic ligament, porta hepatitis</td>
<td>If present</td>
<td>1</td>
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<tr>
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</tr>
<tr>
<td>ASA Physical Status Classification System (≥3)</td>
<td>1</td>
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</table>
RS2 (2017 - ongoing)

Suspected advanced EOC

Preoperative CT Score

LOW RISK (0 - 5)

- PDS
- Dx LSC*
  - PDS
  - NACT
  *Surgeon Preference

HIGH RISK (≥6)

- Dx LSC
  - PDS
  - NACT
RESULTS

- 70 patients included (continues to grow)
RESULTS

- 70 patients included (continues to grow)
- Median age = 65 years (32 - 78)
67% High-Grade Serous
RESULTS

HISTOLOGY

33% other
Mucinous, Clear Cell, Carcinosarcoma, Mixed, Endometrioid
PROCEDURES PERFORMED

- Hysterectomy, BSO, Omentectomy (100%)
RESULTS

PROCEDURES PERFORMED

- Hysterectomy, BSO, Omentectomy (100%)
- **Diaphragm Resection (70%)**
PROCEDURES PERFORMED

- Hysterectomy, BSO, Omentectomy (100%)
- Diaphragm Resection (70%)
- Pelvic / Para-Aortic LN Resection (51%)
PROCEDURES PERFORMED

- Hysterectomy, BSO, Omentectomy (100%)
- Diaphragm Resection (70%)
- Pelvic / Para-Aortic LN Resection (51%)
- Liver / Porta Hepatis Resection (45%)
PROCEDURES PERFORMED

- Hysterectomy, BSO, Omentectomy (100%)
- Diaphragm Resection (70%)
- Pelvic / Para-Aortic LN Resection (51%)
- Liver / Porta Hepatis Resection (45%)
- **Low Anterior Resection (45%)**
PROCEDURES PERFORMED

- Hysterectomy, BSO, Omentectomy (100%)
- Diaphragm Resection (70%)
- Pelvic / Para-Aortic LN Resection (51%)
- Liver / Porta Hepatis Resection (45%)
- Low Anterior Resection (45%)
- **Appendectomy (36%)**
PROCEDURES PERFORMED

- Hysterectomy, BSO, Omentectomy (100%)
- Diaphragm Resection (70%)
- Pelvic / Para-Aortic LN Resection (51%)
- Liver / Porta Hepatis Resection (45%)
- Low Anterior Resection (45%)
- Appendectomy (36%)
- **Splenectomy (28%)**
- Hysterectomy, BSO, Omentectomy (100%)
- Diaphragm Resection (70%)
- Pelvic / Para-Aortic LN Resection (51%)
- Liver / Porta Hepatis Resection (45%)
- Low Anterior Resection (45%)
- Appendectomy (36%)
- Splenectomy (28%)
- **Intrathoracic Resection (21%)**
PROCEDURES PERFORMED

- Hysterectomy, BSO, Omentectomy (100%)
- Diaphragm Resection (70%)
- Pelvic / Para-Aortic LN Resection (51%)
- Liver / Porta Hepatis Resection (45%)
- Low Anterior Resection (45%)
- Appendectomy (36%)
- Splenectomy (28%)
- Intrathoracic Resection (21%)
- **Cholecystectomy (21%)**
<table>
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<th>PROCEDURES PERFORMED</th>
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<tr>
<td>- Hysterectomy, BSO, Omentectomy (100%)</td>
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<tr>
<td>- Cholecystectomy (21%)</td>
</tr>
<tr>
<td>- <strong>Gastrectomy (11%)</strong></td>
</tr>
</tbody>
</table>
RESULTS

RS1
- High Risk: 16 (23%)
- Low-Risk: 54 (77%)
RESULTS

RS1
- High Risk: 16 (23%)
- Low-Risk: 54 (77%)

RS2
- High-Risk: 19 (27%)
- Low-Risk: 51 (73%)

p = 0.69
RESULTS

RS1 Scoring Breakdown

[Chart showing various categories and their scoring breakdown]
RESULTS

RS1 vs. RS2 Scoring Breakdown

RS1
RS2
RESULTS

70 Patients
RESULTS

70 Patients

57 PDS (81%)
RESULTS

70 Patients

55 OPTIMAL (97%)

57 PDS (81%)

*Optimal ≤ 1cm
RESULTS

70 Patients

- 57 PDS (81%)
- 55 OPTIMAL (97%)
- 45 CGR (79%)
RESULTS

70 Patients

- 57 PDS (81%)
- 45 CGR (79%)
- 55 OPTIMAL (97%)
- 2 SUBOPT (3%)

*Suboptimal > 1cm
RESULTS

70 Patients

- 13 NO PDS (19%)
RESULTS

70 Patients

- 13 NO PDS (19%)
  - 9 DIAGNOSTIC LSC (13%)
  - 4 NACT (6%)
## RESULTS

### 70 Patients

- **13 NO PDS (19%)**

### Risk Score (RS)

<table>
<thead>
<tr>
<th></th>
<th>HIGH-RISK</th>
<th>LOW-RISK</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS1</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>RS2</td>
<td>10</td>
<td>3</td>
</tr>
</tbody>
</table>
RESULTS

RS1 PATIENT FLOW DIAGRAM

TOTAL 70

LOW RISK 54

DIAGNOSTIC LAPAROSCOPY 17

PDS 49

12 5

CGR 86%

OPTIMAL 98%

SUBOPTIMAL 2%

HIGH RISK 16

DIAGNOSTIC LAPAROSCOPY 9

PDS 8

5 4

CGR 38%

OPTIMAL 88%

SUBOPTIMAL 13%

NACT 5

NACT 8

37

0

3

4
RESULTS

RS2 PATIENT FLOW DIAGRAM

TOTAL 70

LOW RISK 51

DIAGNOSTIC LAPAROSCOPY 4

PDS 48

1

CGR 81%

OPTIMAL 98%

SUBOPTIMAL 2%

3

HIGH RISK 19

DIAGNOSTIC LAPAROSCOPY 12

PDS 9

6

CGR 67%

OPTIMAL 89%

SUBOPTIMAL 11%

NACT 10

6

NACT 3

3
CONCLUSION

- Implementation of the RS2 algorithm is feasible

- Helped lead to a suboptimal rate of < 3%

- Helped lead to a CGR rate of 79%

- RS2 demonstrated no significant differences in predicting a suboptimal resection when compared to RS1
CONCLUSION

- Implementation of the RS2 algorithm is feasible
- Helped lead to a **suboptimal rate of < 3%**
CONCLUSION

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- Helped lead to a suboptimal rate of < 3%
- Helped lead to a **CGR rate of 79%**
CONCLUSION

- Implementation of the RS2 algorithm is feasible
- Helped lead to a suboptimal rate of < 3%
- Helped lead to a CGR rate of 79%
- RS2 demonstrated no significant differences in predicting a suboptimal resection when compared to RS1
FUTURE DIRECTIONS
FUTURE DIRECTIONS

- Goal for accrual: 150 Patients
FUTURE DIRECTIONS

- Goal for accrual: 150 Patients

- Disseminate across institutions
THANK YOU

Yulia Lakhman MD
Kara Long Roche MD
Oliver Zivanovic MD

Olga Filippova MD, MSc
Yukio Sonoda MD
Ginger Gardner MD, FACOG

Nadeem Abu-Rustum MD
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