Incidence of Platinum-Resistant, Stage III/IV Ovarian Cancer Patients in the US: A Mixed Source Estimation Approach

ICON

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Introduction

Ovarian cancer is one of the most common cancers in women, and the prevailing cause of death from gynecological malignancies in the Western world.[1]
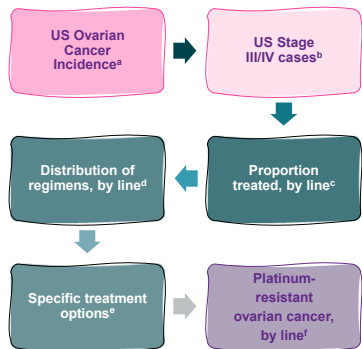
US 2020
23,820
Ovarian cancer incident cases[1]

There is a **lack of incidence data for platinum-resistant** ovarian cancer, for which effective treatments remains an unmet need.

Objectives

To estimate the incidence of ovarian cancer patients in the US, stratified by platinum-resistance, across treatment lines 2 to 4 in 2023
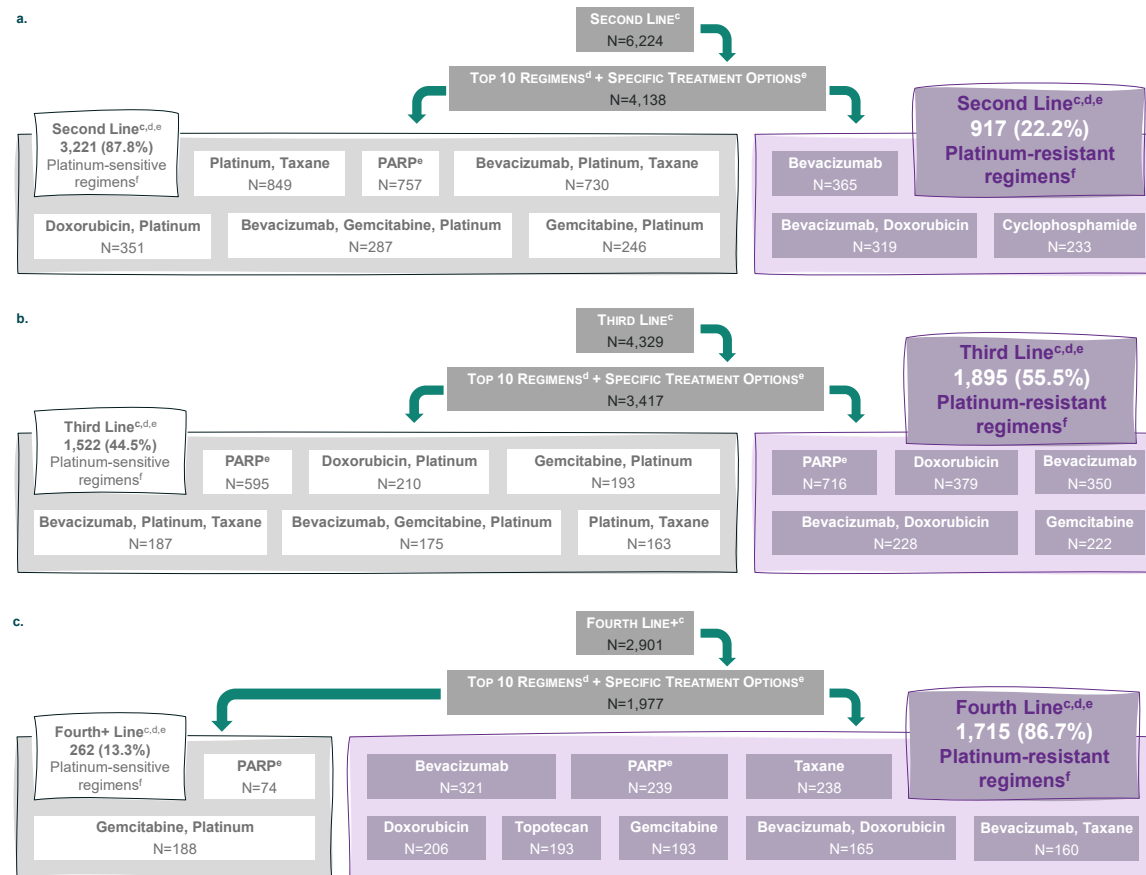
Methods

US Ovarian Cancer Incidence[a] → US Stage III/IV cases[b] → Proportion treated, by line[c] → Distribution of regimens, by line[d] → Specific treatment options[e] → Platinum-resistant ovarian cancer, by line[f]

a) Obtained from the IARC GOC website (reference year: 2020)[1]
b) Obtained by multiplying the number of US incident cases in 2020 by the percentage of Stage III/IV cases from Hurry et al. 2021 (Canadian data from 2010-2018)[2]
c) Obtained by multiplying the number of Stage III/IV cases by the percentage of treated in line III and IV from Beachler et al. 2020 (from 2010-2018)[3]
d) The distribution of top 10 regimens by line from ICON's US claims database was applied to the number of treated stage III/IV cancer
e) The number of patients treated with specific treatment options (i.e. PARP) was calculated based on Datamonitor 2022 data.
f) The number of platinum-resistant (and -sensitive) regimens was obtained by summing the number from all corresponding regimens

Results

14,768 US Stage III/IV cases[b]

Figure 1. US stage II/IV ovarian cancer cases in line 2 (a), line 3 (b) and line 4+ (c), grouped by platinum sensitivity

a.

SECOND LINE[c] N=6,224

TOP 10 REGIMENS[d] + SPECIFIC TREATMENT OPTIONS[e] N=4,138

Second Line[c,d,e] 3,221 (87.8%) Platinum-sensitive regimens[f]
- Platinum, Taxane N=849
- PARP[e] N=757
- Bevacizumab, Platinum, Taxane N=730
- Doxorubicin, Platinum N=351
- Bevacizumab, Gemcitabine, Platinum N=287
- Gemcitabine, Platinum N=246

Second Line[c,d,e] 917 (22.2%) Platinum-resistant regimens[f]
- Bevacizumab N=365
- Bevacizumab, Doxorubicin N=319
- Cyclophosphamide N=233

b.

THIRD LINE[c] N=4,329

TOP 10 REGIMENS[d] + SPECIFIC TREATMENT OPTIONS[e] N=3,417

Third Line[c,d,e] 1,522 (44.5%) Platinum-sensitive regimens[f]
- PARP[e] N=595
- Doxorubicin, Platinum N=210
- Gemcitabine, Platinum N=193
- Bevacizumab, Platinum, Taxane N=187
- Bevacizumab, Gemcitabine, Platinum N=175
- Platinum, Taxane N=163

Third Line[c,d,e] 1,895 (55.5%) Platinum-resistant regimens[f]
- PARP[e] N=716
- Doxorubicin N=379
- Bevacizumab N=350
- Bevacizumab, Doxorubicin N=228
- Gemcitabine N=222

c.

FOURTH LINE+[c] N=2,901

TOP 10 REGIMENS[d] + SPECIFIC TREATMENT OPTIONS[e] N=1,977

Fourth+ Line[c,d,e] 262 (13.3%) Platinum-sensitive regimens[f]
- PARP[e] N=74
- Gemcitabine, Platinum N=188

Fourth Line[c,d,e] 1,715 (86.7%) Platinum-resistant regimens[f]
- Bevacizumab N=321
- PARP[e] N=239
- Taxane N=238
- Doxorubicin N=206
- Topotecan N=193
- Gemcitabine N=193
- Bevacizumab, Doxorubicin N=165
- Bevacizumab, Taxane N=160

Key results

Estimated platinum-resistant regimens, by line:
- **22.2%** of regimens in **line 2**
- **55.5%** of regimens in **line 3**
- **86.7%** of regimens in **line 4+**

Conclusions

By applying an approach based on a mix of proprietary, publicly available, and published data, this study provided an estimate of the numbers of stage III/IV ovarian cancer patients treated by line in 2023 in the US, stratified by platinum resistance. The results showed an increase in the proportion of platinum-resistant patients from line 2 to 4+.

Limitations

- Time frames of the different sources did not always completely match
- In claims database treatments that are not reimbursed tend to be missed, leading to underestimation
- In ICON's US claims database the categorization of line of treatment was based on algorithms
- Restricting the analysis to the top ten regimens might limit comprehensiveness while avoiding fragmentation

References
1. Ervik M, Lam F, Laversanne M, et al. (2021). Global Cancer Observatory: Cancer Over Time. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/overtime , accessed [21 October 2023].
2. Hurry M, Hassan S, Seung SJ, et al. Real-World Treatment Patterns, Survival, and Costs for Ovarian Cancer in Canada: A Retrospective Cohort Study Using Provincial Administrative Data. J Health Econ Outcomes Res. 2021 Dec 9;8(2):114-121.
3. Beachler DC, Lamy FX, Russo L, Taylor DH, Dinh J, Yin R, Jamal-Allial A, Dychter S, Lanes S, Verpillat P. A real-world study on characteristics, treatments and outcomes in US patients with advanced stage ovarian cancer. J Ovarian Res. 2020 Aug 31;13(1):101.

Abbreviations
GCO Global Cancer Observatory
IARC International Agency for Research on Cancer
PARP PARP inhibitors
US United states