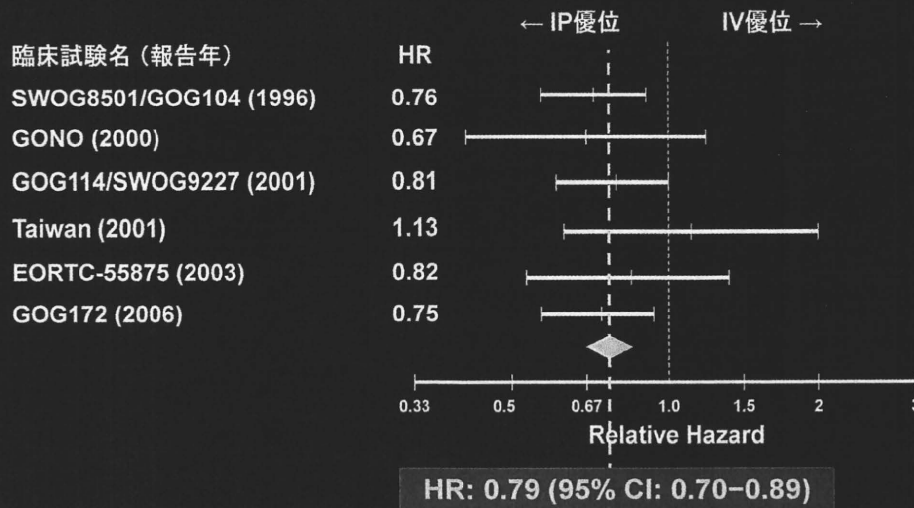


Meta-analysis IP or IP/IV vs. IV Therapy



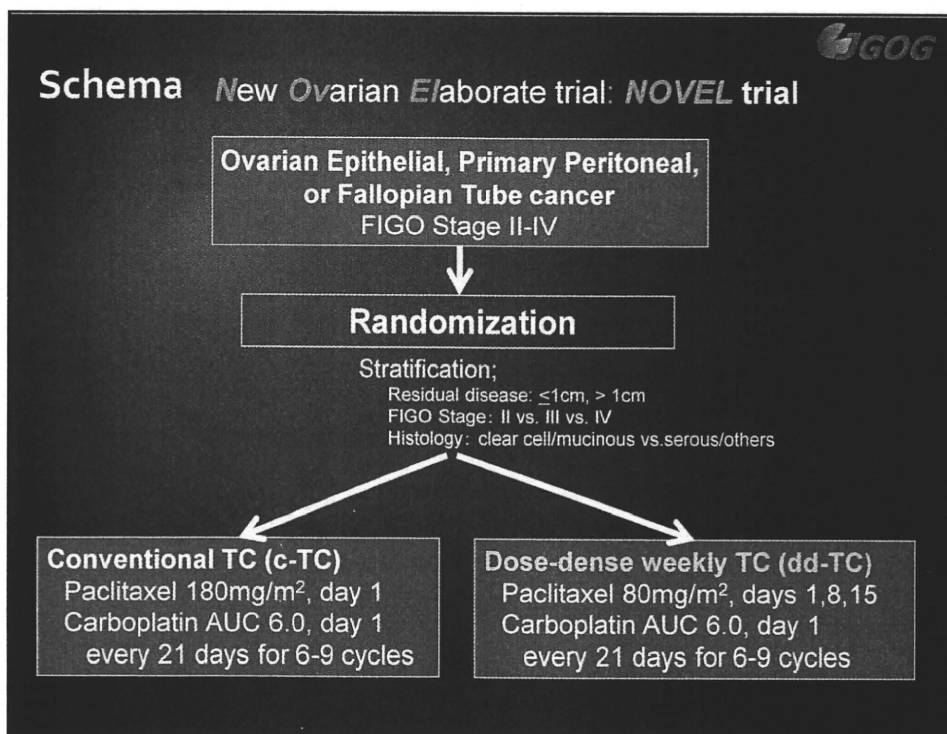
NCI Clinical Announcement 12/29/2005

Background -1-

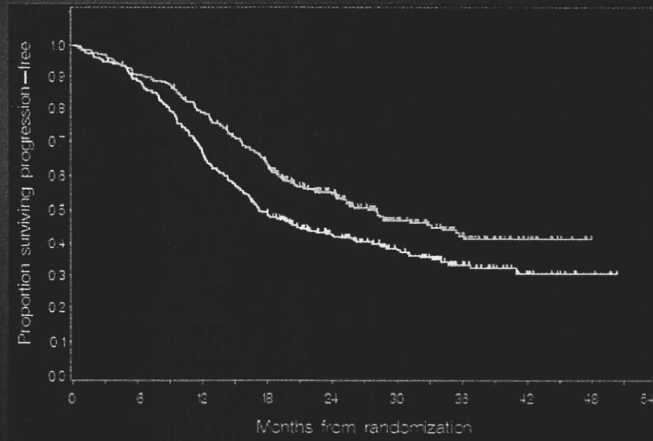
- Three large randomized phase III trials conducted by US GOG have shown significant improvement of OS and/or PFS on ovarian cancer by applying the IP cisplatin-based chemotherapy.
- Metaanalysis of IP chemotherapy showed reduction of Hazard Ratio to 22%, and NCI US has published a clinical announcement recommending IP chemotherapy for optimally debulked stage III ovarian cancer patients.
- Despite these facts, IP chemotherapy has not been applied as standard chemotherapy for this patient population.
- One of the reason for this is the use of cisplatin as IP chemotherapy agents, although current standard agent is carboplatin, when given IV route.

Background -2-

- JGOG3016 Trial showed a significant improvement of PFS and OS by using dose-dense weekly administration of paclitaxel compared with conventional tri-weekly administration of paclitaxel in combination with tri-weekly administration of IV carboplatin.



Progression-Free Survival



Treatment	n	Event	Median PFS	P value	HR	95%CI
c-TC	319	200	17.2 mos.			
dd-TC	312	160	28.0 mos.	0.0015	0.714	0.581-0.879

Purpose

- To compare the efficacy and safety of IP carboplatin with current standard IV route in combination with dose-dense weekly schedule of IV paclitaxel administration.

Schema

Epithelial Ovarian Cancer
Stages II-IV
Including Bulky Tumor

RANDOMIZATION

Paclitaxel 80 mg/m² IV Day 1,8,15
Carboplatin AUC 6 IV
Q21, 6-8 Cycles

Dose dense-TCiv

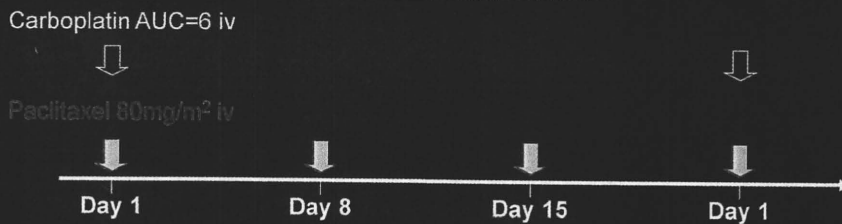
Paclitaxel 80 mg/m² IV Day 1,8,15
Carboplatin AUC 6 IP
Q21, 6-8 Cycles

Dose dense-TCip

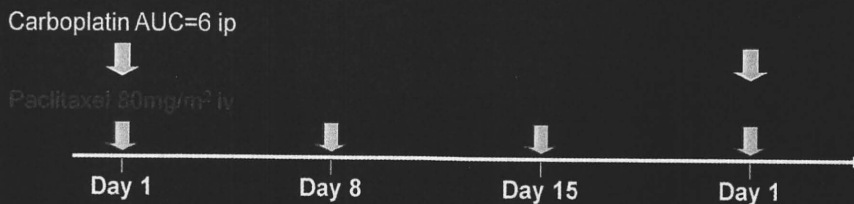
Primary Endpoint: PFS Secondary Endpoint: OS, Toxicity, QOL
Accrual Goal: 746 pts / 511 events

Drug Administration

Regimen I: dd-TCiv



Regimen II: dd-TCip



Registration Procedure

Before
Surgery

Written Informed Consent

Tentative-Register
via Web

<http://www.kitasato-ctcc.jp>

During
Surgery

Primary Debulking (Expl Lap allowed)

Randomize via Telephone
Official Registration

03-5791-6419

Port Placement: IP Arm Only

After Surgery

Pathological Confirmation

For Eligibility

Protocol Treatment

Key Eligibility

- 1) The patient must be planned to undergo laparotomy surgery. Since this trial includes patients with both optimal and suboptimal residual disease, the patients anticipating with exploratory laparotomy are also eligible.
- 2) Patient who is preoperatively anticipated to be FIGO II to IV epithelial ovarian, fallopian tube or primary peritoneal cancer is eligible for Pre-Registration. And the patient must be clinically stage II-IV at the time of Formal Registration.
- 3) Patient who signed the consent for the placement of IP port system when she is assigned to the IP Arm.

Eligibility Continued

- 4) The patients who are planned to receive chemotherapy within 8 weeks after initial surgery.
- 5) ECOG Performance Status must be 0 - 2
- 6) Patient must have adequate organ functions.
- 7) Survival can be expected 3 month or more.
- 8) Age 20 or older
- 9) Written Informed Consent.

Exclusion

- 1) Patients with Borderline Malignancies.
- 2) Patients who have received chemotherapy or radiation therapy for the current disease before enrolment.
- 3) Patients with any of active concurrent malignancies or past history of malignancies of which the follow up is within 5 years.
- 4) Patients with severe complications: Patients with severe heart disease or cerebro vascular disease, or uncontrolled diabetes or hypertension, pulmonary fibrosis, interstitial pneumonitis, active bleeding, active gastrointestinal ulcer, or sever neuropathy.
- 5) Patients with history of hypersensitivity polyoxyethylene castor oil.
- 6) Patients with pleural effusion that need continuous drainage.
- 7) Patients with active infectious disease.
- 8) Patients with possibility of pregnancy, or under breast-feeding.
- 9) Patients with symptomatic brain metastasis.
- 10) Patients whose circumstances at the time of entry onto the study would not permit completion of study or required follow-up.

Protocol Treatments

Control Arm

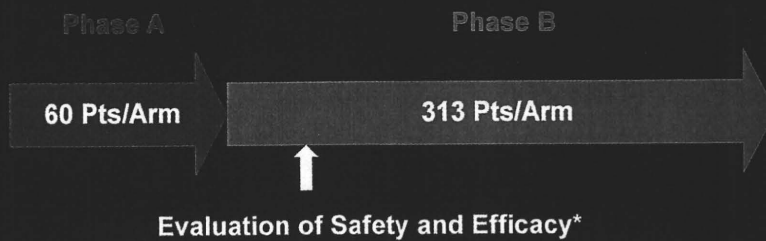
● Regimen I:	dd-TCiv		
Paclitaxel	: 80mg/m²	1 hr iv	Day 1, 8, 15
Carboplatin	: AUC=6.0	1 hr iv	Day 1

Experimental Arm

● Regimen II:	dd-TCip		
Paclitaxel	: 80mg/m²	1 hr iv	Day 1, 8, 15
Carboplatin	: AUC=6.0	<u>one shot ip</u>	Day 1

- Q 21 days/1 Cycle Repeat 6 to 8 cycles.
- IDS can be performed after 3 to 5 cycle, and up to 3 additional cycles can be administered
- If IDS is not undergo, protocol treatment should be completed at 6 cycle.

Trial Phase



Patient Assessment

Phase II Part = phase A
Phase III Part = phase A + phase B

- * IDMC will assess the feasibility of conducting Phase B at the time when all CRFs are collected.
- ** Final analysis will performed either when planned follow-up is completed or when 510 events are observed.

Endpoints

- Phase II Part (phase A)
 - Feasibility
(treatment completion rate, toxicity, response rate, etc)
- Phase III Part (phase A + phase B)
 - Primary Endpoint: PFS
 - Secondary Endpoint: OS
 - Response Rate
(only for measurable disease)
 - Toxicity
 - Treatment Completion Rate
 - QoL
 - Cost Effectiveness

Starting Criteria for Chemotherapy

- Day1

	Value
ANC	$\geq 1,000 /\text{mm}^3$
PLT	$\geq 75,000 /\text{mm}^3$
Peripheral Neuropathy	$\leq \text{Grade}1$
Other Non-Hem Tox (Except alopecia, fatigue, nausea, constipation)	$\leq \text{Grade}1$ 以下

Up to 3 weeks delay will be acceptable

- Day 8 and 15

	Value
ANC	$\geq 500 /\text{mm}^3$
PLT	$\geq 50,000 /\text{mm}^3$

Up to 3 weeks delay will be acceptable

Dose Reduction Criteria

Criteria	Agent
Delay 2 week to 3 week	Both Pacalitaxel and Carboplatin -1 Level
DLT-ANC*	
DLT-PLT**	
Grade 3 Non-Hem Tox in the previous cycle (Except Fatigue, Nausea/Vomiting, Constipation, and Peripheral Neuropathy)	Paclitaxel only -1 Level
Peripheral Neuropathy \geq Grade 2	

*DLT-ANC

- ① Febrile Neutropenia
- ② G 4 Neutropenia \geq 7 days despite the use of G-CSF

**DLT-PLT

- ① Grade 4 thrombocytopenia
- ② Grade 3 thrombocytopenia with hemorrhage or platelet transfusion

Dose Modification

Level	Paclitaxel (mg/m ²)	Carboplatin (AUC)
0	80	6.0
-1	70	5.0
-2	60	4.0
-3	off protocol	off protocol

Protocol Treatment

● Regimen I: dd-TCiv arm

Example

Day 1	Premedication		
	Saline 250ml + Paclitaxel 80mg/m ²	div (60 min)	
	Saline 250ml + Carboplatin AUC=6	div (60 min)	
Day 8	Premedication		
	Saline 250ml + Paclitaxel 80mg/m ²	div (60 min)	
Day 15	Premedication		
	Saline 250ml + Paclitaxel 80mg/m ²	div (60 min)	

Carboplatin AUC=6 iv

Paclitaxel 80mg/m² iv



Protocol Treatment

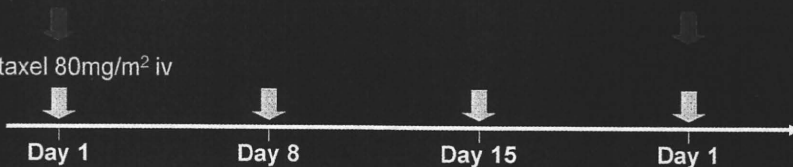
● Regimen II: dd-TCip Arm

(Example)

Day 1	Premedication		
	Saline 250ml + Paclitaxel 80 mg/m ²	div (60 min)	
	<u>(During Pac div) Puncture of IP Port then infuse Saline 1000ml~1500ml IP</u>		
	<u>After Paclitaxel div</u>		
	<u>Carboplatin AUC 6 Bolus IP</u>		
Day 8	Premedication		
	Saline 250ml + Paclitaxel 80mg/m ²	div (60 min)	
Day 15	Premedication		
	Saline 250ml + Paclitaxel 80mg/m ²	div (60 min)	

Carboplatin AUC=6 ip

Paclitaxel 80mg/m² iv



Statistical Considerations

- Phase II Part

Target 120 (60/Arm)

Simulation calculation based on JGOG3016 trial results

Accuracy 15% of 95% CI gives 46 pts per arm.

Assumption: IP arm may lower completion rate, higher

Target accrual set to 60 patients per arm

Statistics –continued-

- Phase III Part

Target 746 or 510 Events

3 Year Enrollment and 3 Year Follow-up

JGOG3016 Trial: PFS of dd-TC Arm = 28 months

IP Trial Meta-analysis: Hazard Ratio = 21.6% Decrease in favor of

IP

alpha 5% (two tailed)

Power 80%

Statistical Considerations

- Interim Analysis

For efficacy: 3.5 years after starting enrollment or 255 events.

Significance 0.3% for interim, 4.7% for final analysis

Futility Analysis: Every year after 2nd year of enrollment.

QOL

- Before Trial

Register institutional coordinator who take QOL to the Kitasato-CTCC.

The institutional QOL coordinator send the forms to KCTCC.

- QOL Measurement

FACT-O

FACT-Cx

FACIT Fatigue sub scale

EQ-5D (EuroQol 5 Dimension)

ECOG Performance Status

- Schedule (Equal to GOG252)

Before Treatment

After 3 Cycle or 9 weeks after treatment initiation.

After 6 cycle or 18 weeks after treatment initiation.

6 month after end of the 6th cycle of treatment

1 Year after end of the 6th cycle of treatment

2 Year after end of the 6th cycle of treatment

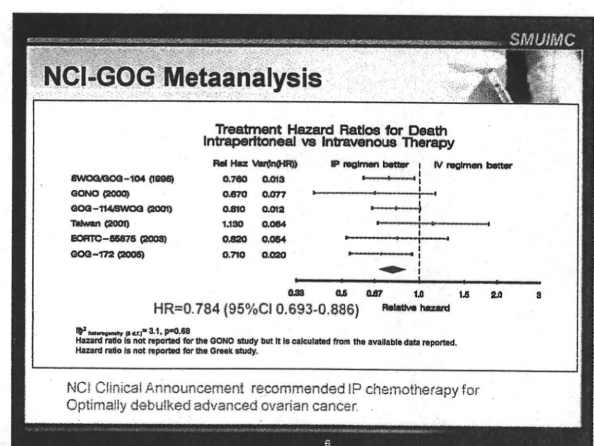
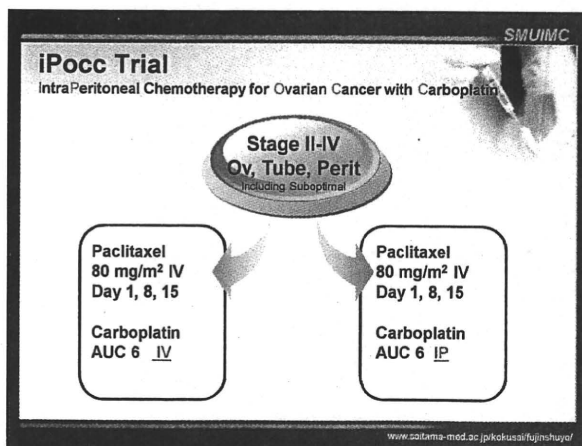
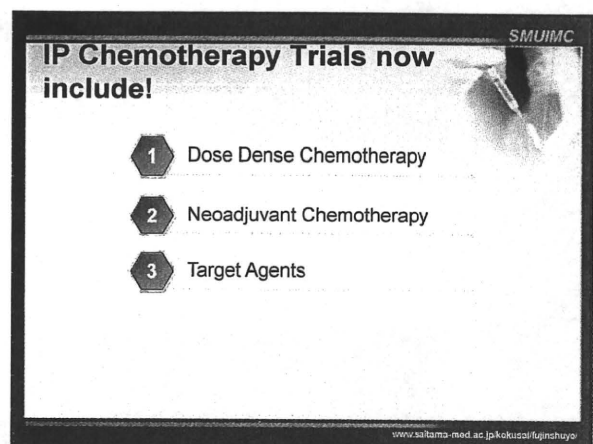
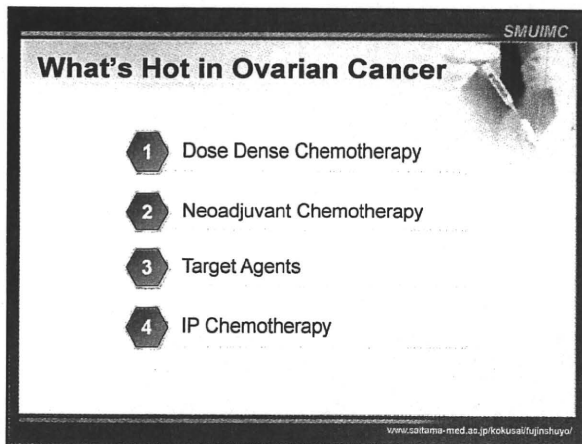
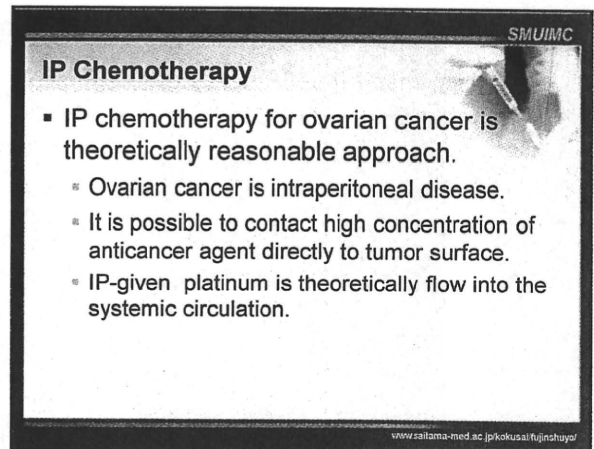
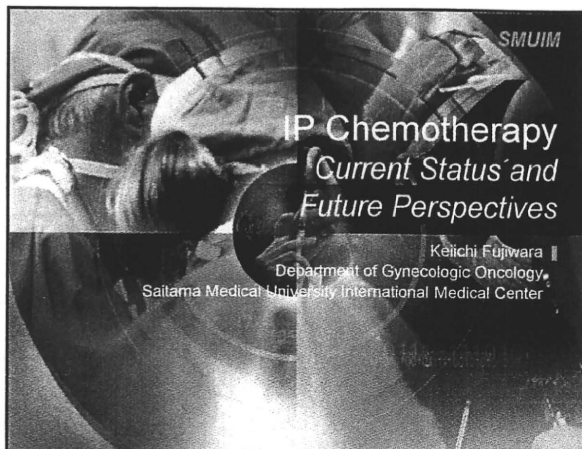
Cost Analysis

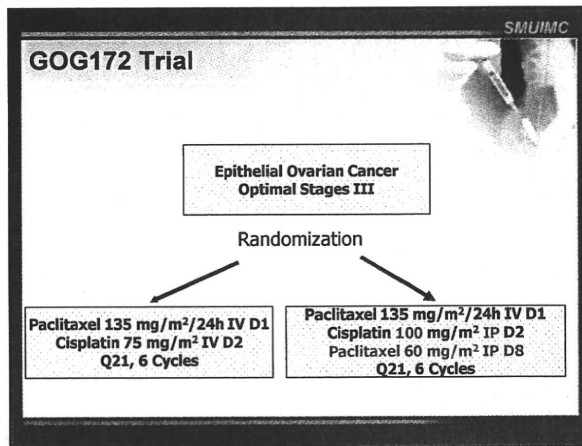
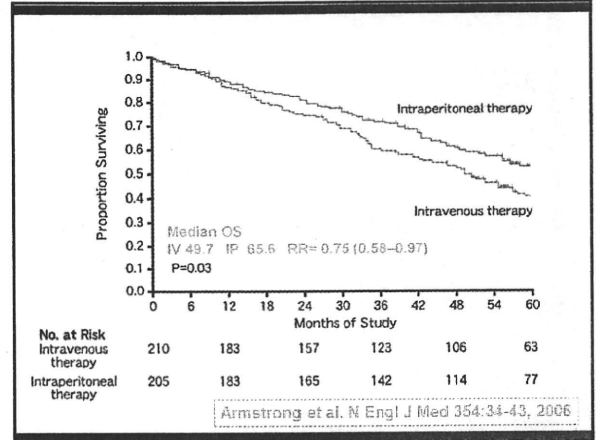
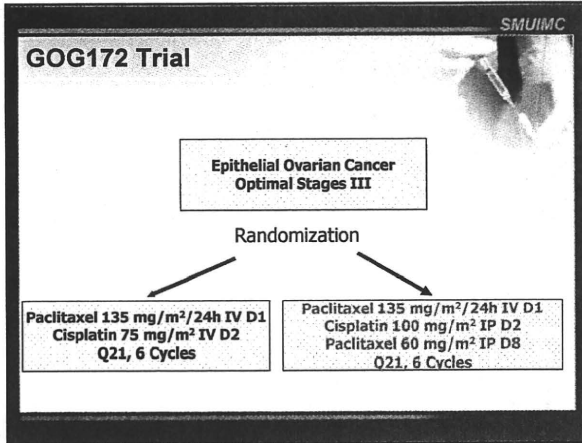
- Purpose
Cost Analysis Comparison between IP/IV carboplatin treatment in ovarian, peritoneal, and tubal cancer.
- Objects (Japanese Only?)
Institution : Institutional support with IRB approval for Cost analysis.

Sample Size : approximately 200
- Methods
Cost-Effectiveness Analysis
Cost-Utility Analysis

Thank you!

- We look forward to your participations.





**IP Therapy in Ovarian Cancer
Controversial Issue**

SMUJMC

- Efficacy
 - Trial Design of GOG172
 - Survival Benefit was obtained because of
 - IP Cisplatin?
 - More Cisplatin Dose? -----Probably Not
 - IP Paclitaxel?
 - Day 8 Paclitaxel?

↑
Impact of JGOG3016 Trial

IP Chemotherapy in Ovarian Cancer

SMUJMC

- Trial Endpoints to be Answered
 - Less Toxic Combination
 - Can Carboplatin be replaceable to Cisplatin?
 - Is Day 8 IP Paclitaxel required?
 - Efficacy Assessment
 - Is IP Carboplatin better than IV Carboplatin?
 - Dose Day 8 IP Paclitaxel matter or Only Day 8 Paclitaxel (IV) matter?
 - New Approach
 - Combination of Targeted Agents
 - Bevacizumab
 - Incorporating Neoadjuvant Chemotherapy

NCIC OV-21/GCIG Trial (Phase II/III Study)

SMUJMC

Original

Pick the winner strategy

Neoadjuvant Chemotherapy
for Stage III
Epithelial Ovarian Cancer
Followed by
Interval Debulking Surgery
Resulting
Residual Disease < 1 cm

R
A
N
D
O
M
I
Z
E

Paclitaxel 135 mg/m² IV
Carboplatin AUC 6 IV
Q21, 6-8 Cycles

Paclitaxel 135 mg/m² IV
Carboplatin AUC 6 IP
Q21, 6-8 Cycles

Paclitaxel 135 mg/m² IV
Cisplatin 75 mg/m² 6 IP
Paclitaxel 60 mg/m² IP D8
Bevacizumab
Q21, 6-8 Cycles

SMUIMC

NCIC OV-21/GCIG Trial (Phase II/III Study) Amended

Pick the winner strategy

Neoadjuvant Chemotherapy for Stage III Epithelial Ovarian Cancer Followed by Interval Debulking Surgery Resulting Residual Disease < 1 cm

R
A
N
D
O
M
I
Z
E

- Paclitaxel 135 mg/m² IV
Carboplatin AUC 6 IV
Paclitaxel 60 mg/m² IV D8
Q21, 6-8 Cycles
- Paclitaxel 135 mg/m² IV
Carboplatin AUC 6 IP
Paclitaxel 60 mg/m² IP D8
Q21, 6-8 Cycles
- Paclitaxel 135 mg/m² IV
Cisplatin 75 mg/m² 6 IP
Paclitaxel 60 mg/m² IP D8
Bevacizumab
Q21, 6-8 Cycles

Accrual Goal = 830

SMUIMC

GOG IP Trial (Original)

Optimal Debulked Stage III Epithelial Ovarian Cancer

R
A
N
D
O
M
I
Z
E

- Paclitaxel 175 mg/m² IV
Carboplatin AUC 6 IV
Bevacizumab
Q21, 6-8 Cycles
- Paclitaxel 175 mg/m² IV
Carboplatin AUC 6 IP
Bevacizumab
Q21, 6-8 Cycles
- Paclitaxel 135 mg/m² IV
Cisplatin 75 mg/m² 6 IP
Paclitaxel 60 mg/m² IP D8
Bevacizumab
Q21, 6-8 Cycles

SMUIMC

Phase III: GOG 0252

Stage II or III (<1cm residual), Ovarian, primary peritoneal, or fallopian tube cancer

R
A
N
D
O
M
I
Z
E

- Paclitaxel 80 mg/m²/1h IV, Days 1, 8, 15, Cycles 1-6
Carboplatin AUC 6 IV, Day 1, Cycles 1-6
Bevacizumab 15 mg/kg IV, Cycles 2-22
- Paclitaxel 80 mg/m²/1h IV, Days 1, 8, 15, Cycles 1-6
Carboplatin AUC 6 IP, Day 1, Cycles 1-6
Bevacizumab 15 mg/kg IV, Cycles 2-22
- Paclitaxel 135 mg/m²/3h IV, Day 1, Cycles 1-6
Cisplatin 75 mg/m² IP, Day 2, Cycles 1-6
Paclitaxel 60 mg/m² IP, Day 8, Cycles 1-6
Bevacizumab 15 mg/kg IV, Cycles 2-22

- Accrual goal: 1100 pts
- Primary end point: PFS

SMUIMC

iPocc Trial (GOTIC-001/JGOG3019)

GCTIC JGOG

Epithelial Ovarian Cancer Stages II-IV Including Suboptimal

Randomization

- Paclitaxel 80 mg/m² IV Weekly
Carboplatin AUC 6 IV
Q21, 6-8 Cycles
- Paclitaxel 80 mg/m² IV Weekly
Carboplatin AUC 6 IP
Q21, 6-8 Cycles

Primary Endpoint: PFS
Secondary Endpoint: OS, Toxicity, QOL

SMUIMC

IP Carboplatin

- Rationale for use
 - Retrospective Assessment (Gyn Oncol 2003)
 - Carboplatin Dose > 400 mg/m²
 - GOG9917 (SGO2010)
 - Feasibility of Paclitaxel 175 mg/m² + Carboplatin AUC6 Q21 days
- Rationale for Suboptimal Populations
 - SGSG Phase II (IJGC 2009)

www.saitama-med.ac.jp/kokusai/fujishima/

SMUIMC

Response to IP Carboplatin

SGSG Phase II Study (Fujiwara et al, IJGC 2009)

- N=24
- CR=6, PR=14, NC=4, PD=0
 - Response Rate 83.3% (95%CI: 62.6-95.3%)

www.saitama-med.ac.jp/kokusai/fujishima/

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Punch Line for iPocc Study

- Exclusively determining the role of IP carboplatin over IV administration
- Incorporating dose-dense paclitaxel (JGOG follow up)
- Including suboptimal disease
- 高度医療評価制度に基づく我が国初の第Ⅲ相比較試験

www.saitama-med.ac.jp/kokusai/fujinshuyo/

高度医療評価制度の利用

SMUIMC

レジメン I: dd-TCiv療法

Carboplatin AUC=6 iv

Paclitaxel 80mg/m² iv

Day 1 Day 8 Day 15 Day 1

レジメン II: dd-TCip療法

Carboplatin AUC=6 ip

Paclitaxel 80mg/m² iv


Day 1 Day 8 Day 15 Day 1

www.saitama-med.ac.jp/kokusai/fujinshuyo/

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iPocc試験

- 薬剤無償提供メーカー
 - ブリストル・マイヤーズ
 - サンド製薬
 - 日本化薬
 - 沢井製薬




www.saitama-med.ac.jp/kokusai/fujinshuyo/

SMUIMC

iPocc Trial

Possible International Collaboration

- SWOG (Markman)
- Korean institutions (Ryu)
- ANZGOG (Frielander)

www.saitama-med.ac.jp/kokusai/fujinshuyo/

SMUIMC

IP Trials: Summary

- 3 Randomized Trials are on-going worldwide to evaluate the role of IP carbo
 - GOG 256
 - Focusing Bevacizumab incorporation
 - GOG172 Winner
 - Canadian OV-21/GCIG
 - Focusing after NAC and Interval Debulking
 - Focusing pure role of IP carboplatin
 - Role of IP chemotherapy for suboptimal + IDS

www.saitama-med.ac.jp/kokusai/fujinshuyo/

SMUIMC



謝辞
 大会長: 高川裕之教授
 座長: 落合和徳教授
 杉山徹教授

www.saitama-med.ac.jp/kokusai/fujinshuyo/

Ongoing IP Chemotherapy Trials
Worldwide:
What can we gain?

Keiichi Fujiwara
Saitama Medical University International Medical Center

What shall we gain?
**BEHIND THE ONGOING IP
CHEMOTHERAPY TRIALS**

GOG172 Trial

Stage III
Ovarian Cancer
Optimal <1cm

Paclitaxel 135 mg/m²/24h
Cisplatin 75 mg/m² IV
q 21 days 6 cycles

Paclitaxel 135 mg/m²/24h
Cisplatin 100 mg/m² IP D2
Paclitaxel 60 mg/m² IP D8
q 21 days 6 cycles

Armstrong et al. ASCO 2009. N Engl J Med 361: 2443-2452

GOTIC *iPocc Trial* **JGOG**
Intra-peritoneal therapy for Ovarian Cancer with Carboplatin
(GOTIC-001 / JGOG3019)

A Randomized Phase II/III Trial of 3 Weekly Intraperitoneal versus
Intravenous Carboplatin in Combination with Intravenous Weekly
Dose-Dense Paclitaxel for Newly Diagnosed Ovarian, Fallopian
Tube and Primary Peritoneal Cancer

Study Chair
Keiichi Fujiwara
Saitama Medical University International Medical Center

Schema

Epithelial Ovarian Cancer
Stages II-IV
Including Bulky Tumor

RANDOMIZATION

Paclitaxel 80 mg/m² IV Day 1,8,15
Carboplatin AUC 6 IV
Q21, 6-8 Cycles
Dose dense-TCiv

Paclitaxel 80 mg/m² IV Day 1,8,15
Carboplatin AUC 6 IP
Q21, 6-8 Cycles
Dose dense-TCip

Primary Endpoint: PFS Secondary Endpoint: OS, Toxicity, QOL
Accrual Goal: 746 pts / 511 events

Drug Administration

Regimen I: dd-TCiv

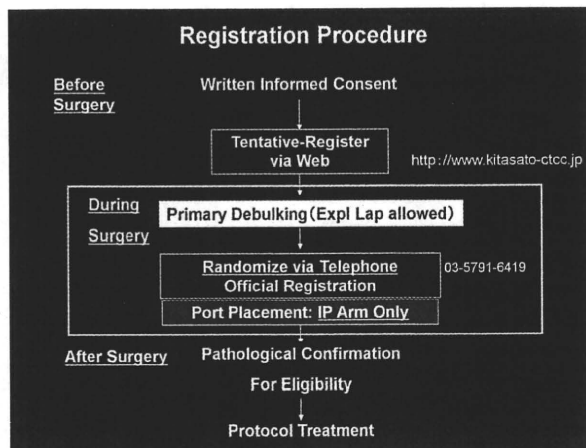
Carboplatin AUC=6 iv
Paclitaxel 80mg/m² iv

Day 1 Day 8 Day 15 Day 1

Regimen II: dd-TCip

Carboplatin AUC=6 ip
Paclitaxel 80mg/m² iv

Day 1 Day 8 Day 15 Day 1



- ### Key Eligibility
- 1) The patient must be planned to undergo laparotomy surgery. Since this trial includes patients with both optimal and suboptimal residual disease, the patients anticipating with exploratory laparotomy are also eligible.
 - 2) Patient who is preoperatively anticipated to be FIGO II to IV epithelial ovarian, fallopian tube or primary peritoneal cancer is eligible for Pre-Registration. And the patient must be clinically stage II-IV at the time of Formal Registration.
 - 3) Patient who signed the consent for the placement of IP port system when she is assigned to the IP Arm.

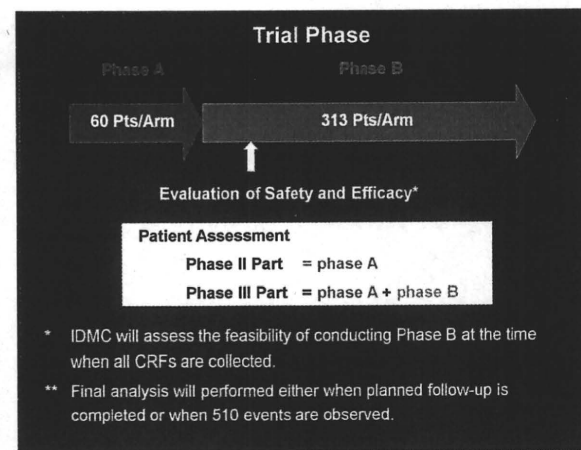
- ### Eligibility Continued
- 4) The patients who are planned to receive chemotherapy within 8 weeks after initial surgery.
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 - 6) Patient must have adequate organ functions.
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 - 8) Age 20 or older
 - 9) Written Informed Consent.

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 - 4) Patients with severe complications: Patients with severe heart disease or cerebro vascular disease, or uncontrolled diabetes or hypertension, pulmonary fibrosis, interstitial pneumonitis, active bleeding, active gastrointestinal ulcer, or severe neuropathy
 - 5) Patients with history of hypersensitivity polyoxyethylene castor oil.
 - 6) Patients with pleural effusion that need continuous drainage.
 - 7) Patients with active infectious disease.
 - 8) Patients with possibility of pregnancy, or under breast-feeding.
 - 9) Patients with symptomatic brain metastasis.
 - 10) Patients whose circumstances at the time of entry onto the study would not permit completion of study or required follow-up.

Protocol Treatments

Control Arm			
● Regimen I:	dd-TCiv		
Paclitaxel	: 80mg/m ²	1 hr iv	Day 1, 8, 15
Carboplatin	: AUC=6.0	1 hr iv	Day 1
Experimental Arm			
● Regimen II:	dd-TCip		
Paclitaxel	: 80mg/m ²	1 hr iv	Day 1, 8, 15
Carboplatin	: AUC=6.0	one shot ip	Day 1

- Q 21 days/1 Cycle Repeat 6 to 8 cycles.
- IDS can be performed after 3 to 5 cycle, and up to 3 additional cycles can be administered
- If IDS is not undergo, protocol treatment should be completed at 6 cycle.



Endpoints

- Phase II Part (phase A)
 - Feasibility
(treatment completion rate, toxicity, response rate, etc)
- Phase III Part (phase A + phase B)
 - Primary Endpoint: PFS
 - Secondary Endpoint: OS
 - Response Rate
(only for measurable Paclitaxel)
 - Toxicity
 - Treatment Completion Rate
 - QoL
 - Cost Effectiveness

NCIC OC21/GCIG

Pick the winner strategy

Neoadjuvant Chemotherapy for Stage III Epithelial Ovarian Cancer Followed by Interval Debulking Surgery Resulting Residual Disease < 1 cm

R
A
N
D
O
M
I
Z
E

**Paclitaxel 135 mg/m² IV
Carboplatin AUC 6 IV
Paclitaxel 60 mg/m² IV D8
Q21, 6-8 Cycles**

**Paclitaxel 135 mg/m² IV
Carboplatin AUC 6 IP
Paclitaxel 60 mg/m² IP D8
Q21, 6-8 Cycles**

**Paclitaxel 135 mg/m² IV
Cisplatin 75 mg/m² 6 IP
Paclitaxel 60 mg/m² IP D8
Q21, 6-8 Cycles**

Total Sample Size 830

New Key Evidences since 2006

- ❖ EORTC55971 (IGCS2008, NEJM 2010)
 - NACT + IDS + ACT = PDS + ACT
- ❖ JGOG3016 (Lancet 2009)
 - Dose-dense weekly paclitaxel: better than 3 weekly paclitaxel
- ❖ GOG218 (ASCO2010)
 - Incorporation of Bevacizumab with chemo + maintenance: better than chemo alone

Based on the EORTC55791 trial

- ❖ There will be a trend of more NACT + IDS approach
 - Does this mean that there will be less room for IP chemotherapy?
 - Under the current concept of IP chemotherapy being effective only for small residual disease?
- ❖ Questions for the Future
 - What will be the
 - Role of IP chemotherapy upfront?
 - Role of IP chemotherapy after NACT + IDS?

Result of JGOG3016

- ❖ Questions the role of Day 8 IP Paclitaxel in GOG172 Trial.
 - Does Day 8 paclitaxel matter?
 - Does Day 8 IP paclitaxel matter?

GOG218 Results

- ❖ What is the role of bevacizumab in combination with IP chemotherapy?
 - There is a possibility that incorporation of anti-angiogenic agent enhance the effect of IP chemotherapy.