Cytoreductive Surgery plus Hyperthermic Intraperitoneal Chemotherapy for Peritoneal Carcinomatosis Arising from Ovarian Cancer: A Pilot Experience from Saudi Arabia

Ismail A. Al-Badawi, Hany Salem

Department of Obstetrics and Gynecology, King Faisal Specialist Hospital & Research Centre, Riyadh, Saudi Arabia

مستشفى الملك فيصل التخصصي ومركز الأبحاث
King Faisal Specialist Hospital & Research Centre
Gen. Org. مؤسسة عام

Introduction

- Ovarian cancer is regarded as the leading cause of cancer-related deaths among all types of gynecologic malignancies.
- Unfortunately, around two thirds of patients present to clinical attention with advanced disease stage in the form of peritoneal carcinomatosis (PC) or distant metastasis, and the associated five-year survival is very poor (less than 20%).
- Moreover, more than 50% of patients will develop recurrence (relapse) after initial standard treatment with optimal cytoreductive surgery (CRS) and adjuvant systemic platinum-based chemotherapy.
- The optimal management of PC arising from primary and recurrent ovarian cancer remains a point of controversy.
- CRS and hyperthermic intraperitoneal chemotherapy (HIPEC) have been employed in a select series of patients with PC arising from ovarian cancer, and findings have demonstrated therapeutic advantages in terms of improved disease-free survival (DFS) and overall survival (OS).
- To the best of our knowledge, no such study was conducted from Saudi Arabia, a third-world country.

Objective

- The objective is to report our pilot single-center experience (n=8) of CRS plus HIPEC in the management of PC arising from primary or recurrent ovarian cancer, in terms of: (1) feasibility, (2) safety and (3) survival outcomes.

Conclusion

- CRS plus HIPEC is feasible, safe and offers favorable therapeutic benefits in patients with PC arising from ovarian cancer.
- Limitations of study: retrospective study design, lack of control group and small sample size.

Materials and Methods

- Study from January 2016 to January 2019.
- Patients with primary PS arising from OC, and managed by CRS plus HIPEC.
- Medical records were retrospectively analyzed for preoperative, operative, and postoperative details.
- Inclusion criteria for considering CRS plus HIPEC included (1) age below 75 years, (2) Karnofsky performance status $\geq 50\%$, (3) satisfactory hematological, hepatic, coagulation, renal, and electrolyte profiles, (4) proven diagnosis of primary or secondary PS confirmed by imaging modality and/or intraoperative biopsy, (5) no evidence distant metastasis to brain, lungs, liver, or bones, and (6) signed written informed consent by patients.
- All operations were carried out by the same surgeons from Department Obstetrics and Gynecology.
- CRS was performed as previously documented by Sugarbaker and included multiple visceral resections directed towards optimal eradication of neoplastic foci from abdominopelvic cavity.
- Assessment of residual tumors was determined intraoperatively using the standard cytoreduction completeness scores: CC-0 (no gross residual disease), CC-1 (<0.25 cm), CC-2 (0.25 cm - 2.5 cm), and CC-3 (>2.5 cm).
- Open-abdomen HIPEC was performed Postoperative morbidity and mortality following CRS plus HIPEC were evaluated according to the Clavien-Dindo classification system for postoperative complications.

Results

Table 1: Characteristics of patients

Mean BMI in kg/m ² $\pm$ SD (range)	33.1 $\pm$ 7.5 (23.1-56.1)
Mean age in years $\pm$ SD (range)	53 $\pm$ 12.9 (26-72)
Age	
<50 years, n (%)	5 (18.5)
≥ 50 years, n (%)	22 (81.5)
Histology	
Serous adenocarcinoma, n (%)	25 (92.6)
Granulosa cell tumor, n (%)	2 (7.4)
FIGO Stage	
III, n (%)	21 (77.8)
IV, n (%)	6 (22.2)
Presentation	
Primary, n (%)	16 (59.3)
Secondary, n (%)	11 (40.7)
Preoperative radiotherapy	
No, n (%)	1 (3.7)
Yes, n (%)	26 (96.3)
Preoperative Chemotherapy	
No, n (%)	5 (18.5)
Yes, n (%)	22 (81.5)

Table 2: Operative details of CRS+HIPEC

	n (%)
Major viscera resected	
Appendectomy	15 (55.6)
Cholecystectomy	8 (29.6)
Splenectomy	10 (37.0)
Omentectomy	17 (63.0)
Peritonectomy	19 (70.4)
Urinary bladder dissection	5 (18.5)
TAH+BSO	14 (51.9)
CC	
CC-0	15 (55.6)
CC-1	12 (44.4)
Median PCI $\pm$ SD (range)	11 $\pm$ 6 (7-30)
HIPEC chemotherapeutic	
Cisplatin	8 (26.9)
Cisplatin + doxorubicin	19 (70.4)
Median operative time $\pm$ SD (range)	8 $\pm$ 1.3 hr (6-9)
Median EBL $\pm$ SD (range)	1100 ml $\pm$ 150 (600-3200)
Intra-operative morbidity	3 (11.1)
Intra-operative mortality	0

Table 3: Postoperative outcomes of CRS+HIPEC

Median hospital stay $\pm$ SD (range)	12 $\pm$ 3.4 (7-43)
Postop Clavien–Dindo complications	
Grade I	9 (33.3)
Grade II	3 (11.1)
Grade III	3 (11.1)
Grade IV	2 (7.4)
Median follow-up in months $\pm$ SD (range)	16 $\pm$ 9 (6-38)
60-day readmission	2 (7.4%)
60-day mortality	0
Post-operative radiotherapy	2 (7.4)
Post-operative chemotherapy	20 (74.1)
Recurrence	
Local	4 (14.8)
Distant	2 (7.4)
Local + distant	2 (7.4)
Current status	
Alive, no disease	17 (63.0)
Alive, with disease	9 (33.3)
Dead	1 (3.7)

Table 4: DFS according to operative outcomes

	Median DFS (months)
CC score	<0.05
CC-0	19
CC-1	11
PCI score	<0.05
<10	16
>10	9
HIPEC chemotherapeutic	>0.05
Cisplatin	13
Cisplatin + doxorubicin	15