Postoperative outcomes of cytoreductive surgery(CRS) with hyperthermic intraperitoneal chemotherapy(HIPEC)

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BACKGROUND

- **CRS with HIPEC** is performed to treat diseases such as pseudomyxoma peritonei(PMP), peritoneal carcinomatosis (PC), and malignant mesothelioma. It's highly invasive, and can result in various complications. This study retrospectively examined the postoperative outcomes and factors contributing to the outcomes in our hospital.
- CRS- the complete resection of any visible peritoneal tumor
HIPEC- to remove microscopic peritoneal disease by delivering heated chemotherapy drugs to the abdominal cavity
 - the open abdomen technique was used
 - for 30-60min, 41°C

METHODS

- Subjects were 166 patients who underwent this surgery between October 2010 and October 2017. Data were extracted from the anesthesia information management system and electronic health records in our hospital. The relationships between postoperative outcomes and patient backgrounds or intraoperative factors were retrospectively examined.
- Statistical analysis was performed using nonparametric tests. Descriptive statistics are presented as median and ranges for continuous variables and as counts for categorical variables. All analyses were performed with JMP®(13.0.0) (P<0.05).

RESULTS and DISCUSSIONS

Table 1: Patient background n=166

Age ; years	56.7±12.7 (22-81)
Gender ; Male: Female	61:105
Body Mass Index ; kg m	22.6 (13.4-33.5)
ASA class I / II / III (n)	41/113/12
Diagnosis (n)	
PMP	118
PC	42
Mesothelioma etc.	6
Peritoneal Cancer Index ; score	23 (1-39)

Table 2. Intraoperative fluid balance

		n	Median (range)
Input	Crystalloids; mL	166 (100%)	6800 (2650-27200)
	Colloids; mL	146 (88%)	1500(200-7750)
	5%alubmine; mL	141 (85%)	1000 (250-4000)
	RBC; mL	144 (87%)	1120 (280-6160)
	FFP; mL	163 (98%)	1860(450-6330)
	Platelets; mL	23 (14%)	250 (100-1000)
Output	Blood loss; mL	166	627 (25-26050)
	Urine; mL	166	1005 (160-13270)
	Ascites; mL	153	2369 (25-15644)

Table 3: Perioperative parameters

Anaesthesia time ; minutes	791 (454-1661)
Operative time ; minutes	682 (367-1526)
Postoperative ventilation ; days	2 (0-10)
Length of ICU stay ; days	6 (2-25)
Hospital stay ; days	25 (8-273)

Table 4. Major Complications n=39/166 (23.5%)

Intra-abdominal bleeding	11 (6.6%)
Respiratory complications	6(3.6%)
Cardiovascular complications	4 (2.4%)
Pancreatic fistula	4 (2.4%)
DIC	3 (1.8%)
Death	1 (0.6%)
Others (stroke, septic shock, etc.)	14

- Risk factors for all complications were operative time, crystalloid infusion, and red blood cell transfusion. The greatest risk factor was operative time, which was considered in relation to the number of resected organs, extent of lesions, and adhesiolysis.
- Previous studies have also reported that complications of the surgery were associated with operative time, transfusion volume, PCI, diaphragmatic peritonectomy, and number of resected organs.

CONCLUSION

- The incidence of postoperative complications in CRS with HIPEC in our hospital was 23.5%.
- Close communication with surgeons and appropriate infusion and transfusion management are needed.