“Perioperative Fluid Management of Robot Assisted Laparoscopic Surgery patients in the ERAS setting”

G. Amoruso¹, M. R. Menga¹, L. Tullo¹, A. Cotoia¹, L. Mirabella¹, G. Cinnella¹

¹Department of Anaesthesia and Intensive Care - Foggia (Italy)

Introduction

Robot assisted laparoscopic surgery is a widespread technique used more frequently in colorectal surgery. ERAS perioperative management have demonstrated better outcome of patients. Goal Direct Fluid Therapy prevent fluid overload and the risk of Oxygen debt due to occult hypovolemia. These risks influence post operative morbidity and compromise the outcome of patients. In this study we applied ERAS protocol in robotic surgery and we tested the validity of GDFT compared to liberal approach.

Materials and Methods

We enrolled 10 adults patients scheduled to undergo to elective robot assisted laparoscopic major colorectal surgery. Perioperative management was conducted following ERAS protocol. General characteristics of patients (age, gender, comorbidity) were registered. ASA physical status were recorded before surgery.

This group of patients have been compared with 10 laparoscopic colorectal surgery patients.

Both of groups were monitored with semi-invasive Pulse Contour analysis device (Flow Track Vigileo®).

In the first group, intraoperative fluid therapy was guided by hemodynamic assessment of fluid responsiveness based on SV optimization. In the second group intraoperative fluid therapy have been conducted with a liberal classic approach. Hemodynamic data were recorded every 15 minutes in both group. Crystalloid Fluids were preferred and total amount and type of fluid was registered. Finally, complications were registered in the first three days after the surgery.

Results and Discussion

Our results showed no differences in general characteristics, ASA (I-III) physical status and time of surgery (h) (3,2±1,1 vs 3,6±0,5). Hemodynamics parameters (MAP, HR, CI, SVI) were maintained stable during all time of surgery. Using GDFT, in patients underwent robotic surgery, evidence significant differences in total amount of intraoperative fluids (1258±350 vs 3375±1362). Furthermore, we observed less incidence of post operative morbidity (edema, vomiting and nausea) in robotic patients with GDFT approach.

Conclusions

We performed ERAS protocol in two different surgery settings’. We observed the same hemodynamic stability. Also in robotic colorectal surgery Goal Direct Fluid therapy give evidence of efficacy in optimization of hemodynamic but, most importantly, giving less quantity of intraoperative fluids.

	Robot Assisted Laparoscopic Surgery (n=10)	Laparoscopic Surgery (Control Group) (n=10)
Age (mean±SD)	65,4±15,2	68,4±12,5
ASA I, %(N)	20(2)	0 (0)
ASA II, %(N)	50(5)	80 (8)
ASA III, %(N)	30(3)	20 (2)
Time of Surgery, h (mean±SD)	2,6±0,6	3,5±0,4
Comorbidities		
Ipertension, %(N)	70(7)	66,6 (8)
Diabetes, %(N)	50(5)	33,3 (4)
Renal Insufficiency, %(N)	0	8,3 (1)
Other, %(N)	30(3)	33,3 (4)
Post- operative complications		
Edema, %(N)	0	16,7 (2)
Nausea, %(N)	0	16,7(2)
Vomiting, %(N)	0	8,3 (1)
Other, %(N)	10 (1)	25 (3)