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Original Research Article

Adequate timing of thromboembolic prophylaxis in colorectal cancer surgery

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ABSTRACT

Background: It has been found that patients with colorectal cancer are at increased risk for postoperative venous thromboembolism. The aim of this prospective study is to evaluate the incidence of venous thromboembolism and major bleeding complications in patients undergoing colorectal cancer who are treated with preoperative or postoperative venous thromboprophylaxis.
Methods: This prospective study included 30 patients from September 2013 to November 2017. There were 22 males and 8 females; mean age was 66.7±5.5 years (range 44-78). Author divided the patients randomly into two groups (group A=15 cases with preoperative and group B = 15 cases with postoperative venous thromboprophylaxis).
Results: There was no significant difference in preoperative versus postoperative thromboembolic prophylaxis regarding postoperative DVT 0/15(0%) vs 1/15 (6.6%), P=0.69, no bleeding complications and no pulmonary embolism.
Conclusions: Preoperative and postoperative thromboembolic prophylaxis are equally safe in venous thromboembolism protection.

Keywords: Bleeding complications, Colorectal cancer, Thromboembolic prophylaxis

INTRODUCTION

It has been found that colorectal cancer patients are at increased risk for venous thromboembolism VTE post discharge, and both chest guidelines and the national comprehensive cancer network to recommend postoperative VTE prophylaxis for 4 weeks.[1]

Postoperative venous thromboembolism may be due to patient risk factors.

Patients with inflammatory bowel disease have twice the risk compared with the general population of VTE, may be due to severity of disease activity.[2]

The peak of VTE risk approximately 3 weeks post-surgery and increased up to 12 weeks post-surgery.[3] So extended prophylaxis regimens are recommended.[4,5]

Venous thromboprophylaxis is accompanied with risk of bleeding. As demonstrated by ACCP and SCIP guidelines, there is no consensus timing of VTE prophylaxis post major colorectal surgery.

The aim of this prospective study is to evaluate the incidence of venous thromboembolism and major bleeding complications in patients undergoing colorectal cancer who are treated with preoperative or postoperative venous thromboprophylaxis.

METHODS

This prospective study included included 30 patients with colorectal cancer stage I-III from September 2013 to August 2017. There were 22 males and 8 females, mean age was 66.7±5.5 years (range 44-78). Author divided the patients randomly into two groups (group A=15 cases with preoperative venous thromboprophylaxis clexane 40mg the day before surgery once) and (group B = 15cases with postoperative venous thromboprophylaxis with clexane 40mg once /day for 4 weeks). All patients were instructed to full mobilization postoperatively. Venous duplex was performed for all patients immediately before surgery to detect occult preoperative deep vein thrombosis.

Authors included patients undergoing colorectal cancer surgery via laparotomy. Authors excluded pregnant females, current DVT, patients with active or recent haemorrhage and patients with anticoagulation therapy. Authors measured early (48-hrs) and overall (4 weeks) postoperative venous thromboembolism VTE by duplex sonography, high probability on ventilation-perfusion scan and bleeding complications in the form of bleeding from any site, operative site bleeding, intraocular or intracranial hemorrhage, upper or lower gastrointestinal hemorrhage ecchymosis or epistaxis.

The study was approved by the ethical committee of El Fayoum University Hospital. Informed consent was obtained from all individual participants included in the study.

Results are expressed as Mean±SD. Significance is obtained with Analysis of Variance (ANOVA), Chi - square test was used to detect degree of variability and a value of p <0.05 is considered statistically significant.

RESULTS

All patients with occult deep venous thrombosis were excluded from the study, this prospective study included 30 patients from September 2013 to November 2017. There were 22 males and 8 females; mean age was 66.7±5.5 years (range 44-78) (Table 1).

Table 1: Demographic data.

Demographic data		
Sex	Male	22
	Female	8
Age	Min	44 years
	Max	78 years
	Mean±SD	66.7±5.5 years
Operative time	Min	2.47 hours
	Max	3.15 hours
	Mean±SD	2.30±1.7 hours
Hospital stay	Mean±SD	6±3.2 days

There was no significant difference in preoperative versus postoperative thromboembolic prophylaxis regarding postoperative DVT 0/15(0%) vs 1/15 (6.6%); P = 0.69, no bleeding complications and no pulmonary embolism. Mean operative time was 2.30±1.7 hours (range- 2 hours 47 min to 3 hours 15 min).

No postoperative anastomotic leakage occurred. Pathologic assessment revealed free margins for all patients. Mean postoperative hospital stay was 6±3.2 days (range- 7 days to 10 days) follow up of all patients was 8 weeks (Table 2).

Table 2: Post-operative results.

Data	Thromboembolic prophylaxis		P value
	Preoperative	Postoperative	
Postoperative DVT	0/15(0%)	1/15 (6.6%)	0.69
Bleeding complications	No	No	
Pulmonary embolism	No	No	
Postoperative anastomotic leakage	No	No	

DISCUSSION

It has been found that the incidence of venous thromboembolism VTE post colorectal surgery with perioperative venous thromboprophylaxis ranges from 9 to 20%.[6] Also it has been found that patients with colorectal cancer are at increased risk for postoperative venous thromboembolism with incidence rate range from 37% to 46%, respectively.[7]

Malignancy is associated with increased risk factor of higher VTE rates.[8] Other risk factors patient-related and procedure-related such as open surgery, obesity, emergency operations, American Society of Anesthesiologists class, have been associated with VTE in some series but not in others.[9-16] VTE prophylaxis in abdominal or pelvic surgery patients with cancer perioperatively and extended postoperatively reduces overall VTE and VTE-related complications.[17,18]

In present study author gave thromboembolic prophylaxis for patients preoperatively and extended 4 weeks postoperatively without minor or major postoperative haemorrhage like other study with follow up 30 days post-surgery.[19]

There was no significant difference in preoperative versus postoperative thromboembolic prophylaxis regarding postoperative DVT 0/15(0%) vs 1/15 (13.3%); P = 0.69, and the suspected cause in the case who developed DVT one week postoperatively due to immobilization and obesity inspite of postoperative

venous thromboembolic prophylaxis like other study with venous thromboembolic prophylaxis given within 24 hours of colorectal cancer surgery showing lowest rates of adverse events and other study showed that both unfractionated heparin and low-molecular-weight heparin can effectively reduce the incidence of venous thromboembolism in colorectal cancer surgery.[20,21]

CONCLUSION

There was no significant difference in preoperative versus postoperative thromboembolic prophylaxis in colo-rectal cancer surgery regarding postoperative DVT, pulmonary embolism or haemorrhage and it is safe to extend postoperative prophylaxis for 4 weeks.

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