

Letters

INTRODUCING EXTENDED VENOUS THROMBOEMBOLISM PROPHYLAXIS FOR HIGH-RISK VASCULAR PATIENTS UNDERGOING LOWER LIMB AMPUTATION - A QUALITY IMPROVEMENT PROJECT

Editor,

Venous Thrombo-Embolism (VTE) is an established cause of morbidity and mortality amongst vascular surgery patients undergoing lower limb amputation^{1,2}. All-cause mortality rates amongst this patient group are already substantial³, thus VTE risk reduction may improve outcomes. However, best practice regarding post-operative VTE prophylaxis is unclear^{4,5}.

National Institute of Clinical Excellence guidelines suggest that vascular surgery patients should receive low-molecular-weight heparin until mobility is *no longer significantly reduced*¹. However, for many amputees, the reduction in mobility from baseline is permanent, and the optimum duration of VTE prophylaxis is unclear.

The aims of this Quality Improvement Project (QIP) were: -

- to establish baseline practice within Northern Ireland’s regional Vascular Surgery Unit regarding VTE risk-assessment and prophylaxis upon discharge
- introduction of a novel VTE risk-assessment proforma
- completion of two Plan-Do-Study-Act (PDSA) cycles to assess use of the proforma.

Prior to this QIP, VTE risk-assessment would be undertaken amongst all vascular patients upon admission, and prophylactic-dose enoxaparin prescribed during the inpatient stay (if indicated). However, there was typically no formal assessment of ongoing VTE risk upon discharge.

The VTE risk-assessment proforma was devised in conjunction with the local Haematology department and approved by the regional pharmacy group. The proforma was designed to facilitate assessment of the risk of VTE development versus the risk of bleeding should anticoagulation be prescribed. Where indicated, prophylactic-dose enoxaparin for thirty days post-operatively was recommended.

Information regarding VTE risk-assessment and prophylaxis upon discharge amongst patients undergoing lower limb amputation was obtained via review of inpatient records and electronic discharge prescriptions. Assessment of baseline practice was conducted throughout August - October 2016. Two subsequent PDSA cycles were conducted at one week and at two months following formal introduction of the proforma (April 2017). Interventions were made in the form of weekly educational seminars for junior doctors and empowerment of the ward pharmacist to encourage proforma use.

Results of the study are demonstrated in **Table 1**. At baseline, none of the patients underwent VTE risk-assessment upon discharge and none received new anticoagulation. One week following proforma introduction, 67% of patients underwent VTE risk-assessment +/- enoxaparin prescription. Two months following proforma introduction, compliance had risen to 80%.

Barriers to using the risk-assessment proforma include lack of staff awareness, which may reflect the rotation- and shift-based working patterns of junior doctors. Due to the single-centre nature of this study with small patient numbers, it has not been possible to determine statistical significance of our results.

In summary, patients undergoing lower limb amputation are generally at high risk for developing VTE due to pre-operative co-morbidities and post-operative immobility. With this QIP, we have introduced a novel VTE risk-assessment proforma and demonstrated acceptable and improving compliance levels at one-week and two-month intervals. We anticipate

Table 1.

Numbers of patients for whom Venous Thrombo-Embolism (VTE) risk-assessment was undertaken upon discharge, and VTE prophylaxis (enoxaparin for 30 days from date of lower limb amputation) prescribed where indicated, is shown.

	Total number of patients undergoing lower limb amputation	Number considered at risk for post-operative VTE	Number already receiving anticoagulation for pre-operative factors	Number receiving risk assessment +/- extended VTE prophylaxis upon discharge	Number managed in accordance with novel proforma
Baseline	17	15	3	0	3/15 (20%)
Cycle I	6	6	0	4	4/6 (67%)
Cycle II	20	20	4	16	16/20 (80%)



that with increased familiarity of staff with the proforma, all patients will be risk-assessed upon discharge and will receive VTE prophylaxis if indicated. Further work should assess ongoing compliance with the proforma, and explore the impact of extended VTE prophylaxis on morbidity and mortality amongst vascular surgery patients.

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EVALUATION OF COMPUTED TOMOGRAPHY (CT) CHEST AS A SCREENING TOOL FOR COVID-19 IN SURGICAL PATIENTS PRESENTING TO THE ROYAL VICTORIA HOSPITAL EMERGENCY DEPARTMENT- A NORTHERN IRISH STUDY.

Editor,

Coronavirus disease (COVID-19) is an on-going pandemic caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)¹. Undiagnosed COVID-19 infection can complicate peri-operative outcomes and increase transmission to staff via aerosol-generating anaesthetic procedures. In the absence of rapid reverse transcriptase-polymerase chain reaction (RT-PCR) testing, it had been recognised that CT chest could play a role in surgical emergencies where awaiting laboratory results would delay patients' management. On 25th March 2020, the British Society of Thoracic Imaging (BSTI) and the British Society of Gastrointestinal and Abdominal Radiology (BSGAR) recommended low-dose CT chest in addition to CT abdomen

and pelvis in patients presenting as a surgical emergency².

We aimed to evaluate the use of additional CT chest in acute surgical patients presenting to the Emergency Department (ED) of the Royal Victoria Hospital, Belfast.

CT chest, abdomen and pelvis scans requested from ED where the indication was to identify acute surgical pathology were included. Chest x-ray (CXR) and CT images were obtained from Picture Archiving and Communication System (PACS) which were graded according to the BSTI guidelines; normal, indeterminate and classic/probable COVID-19³. Patient outcomes were verified from Northern Ireland Electronic Care Record (NIECR).

A total of 100 patients underwent CT chest as part of the national acute abdominal imaging pathway for COVID-19 from 1st March to 2nd May 2020.

Using BSTI CT reporting proforma, no CT chest scans were reported as classic/probable COVID-19. Three were reported as indeterminate, 78 scans were normal and 19 demonstrated other pathology. Interestingly, the only positive RT-PCR case had a normal CT chest.

Table 1.
CXR, CT and RT-PCR results in symptomatic cohort

Symptomatic patients	Report	%	n
CXR	Normal	35	6
	Abnormal	18	3
	Not performed	47	8
CT	Normal	82	14
	Indeterminate	6	1
	Classic/probable	0	0
	Other/non COVID	12	2
RT-PCR	Negative	76	13
	Positive	6	1
	Not performed	18	3

Table 2.
CXR, CT and RT-PCR results in asymptomatic cohort.

Asymptomatic	Report	%	n
CXR	Normal	41	29
	Abnormal	17	12
	Not performed	42	30
CT	Normal	75	53
	Indeterminate	2	2
	Classic/probable	0	0
	Other/non COVID	23	16
RT-PCR	Positive	0	0
	Negative	61	43
	Not performed	39	28

Of the three patients who had indeterminate findings on CT, results did not alter surgical management in any case. The first case was asymptomatic and RT-PCR negative. CT reported patchy areas of ground glass opacification (GGO). The patient was admitted to intensive care for the management of pancreatitis.

