Postnatal Venous Thromboembolism (VTE) Risk Assessment in Cesarean Section Patients

Mai-Tram Phan, DO[1,2,3]; Michelle Ozcan, MD[1,2,3]
UCF/HCA GME Consortium Greater Orlando OB/GYN Residency Program
[1] Osceola Regional Medical Center, Kissimmee, FL; [2] University of Central Florida College of Medicine, Orlando, FL; [3] HCA Healthcare

UNIVERSITY OF CENTRAL FLORIDA | OSCEOLA REGIONAL MEDICAL CENTER
UNIVERSITY OF CENTRAL FLORIDA COLLEGE OF MEDICINE / HCA HEALTHCARE GME CONSORTIUM

Background

- VTE is a leading cause of maternal mortality, accounting for approximately 9.3% of all maternal deaths.[1]
- Cesarean delivery is an independent risk factor for VTE.[1]
- The American College of Obstetricians and Gynecologists (ACOG) recommends that all patients who undergo cesarean delivery receive mechanical VTE prophylaxis with sequential compression devices (SCDs). For patients with multiple VTE risk factors, ACOG states that the addition of pharmacologic prophylaxis may be beneficial. [2]
- The American College of Chest Physicians (ACCP) recommends the use of pharmacologic prophylaxis in the presence of 1 major or 2 minor risk factors, or when there is a minor risk factor in the setting of an emergency cesarean section.[2]
- However, no validated stratification tool exists to determine the addition of pharmacologic prophylaxis in patients with multiple risk factors for VTE who undergo cesarean delivery. [2]

Objective

- To determine the number of patients with at least risk factor for VTE who received postpartum pharmacologic prophylaxis following cesarean delivery. This is the Plan portion of the Plan-Do-Study-Act (PDSA) Method in order to reduce our local VTE rates.

Methods

- Retrospective observational analysis of 1136 female patients between 18 and 55 years old who had undergone cesarean delivery at Osceola Regional Medical Center between July 2019 to July 2020.
- Patients were stratified by VTE risk factors to assess whether or not postpartum pharmacologic prophylaxis with either low molecular weight heparin (LMWH) or unfractionated heparin was provided.
- VTE risk factors were determined through combined recommendations from ACOG, the Caprini Score[3], ACCP, and the Royal College of Obstetricians and Gynaecologists.
- Data was extracted through the HCA Enterprise Data Warehouse (EDW). Frequency and chi-square tests were used to analyze the data.

Data Specifications
Study period:
July 2019 – July 2020
Females aged: 18 – 55

Inclusion Criteria
Cesarean delivery at Osceola Regional Medical Center

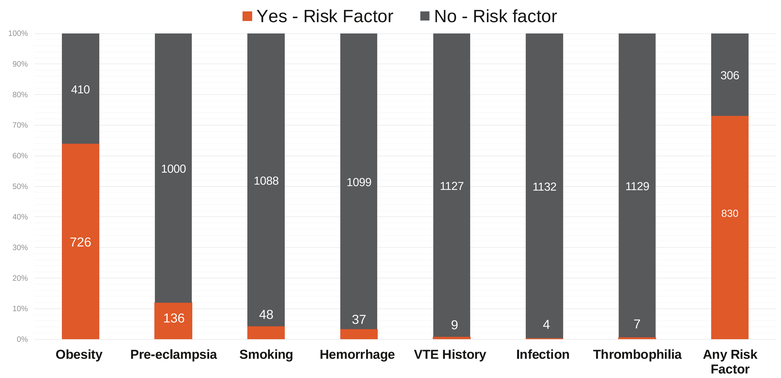
VTE Risk Factors
Obesity
Pre-eclampsia
Smoking
Hemorrhage
VTE history
Infection
Thrombophilia

Results

Table of Any Risk by Pharmacologic Preventative Treatment
The FREQ Procedure

Any Risk		Preventative Treatment		
		0	1	Total
0	Frequency	305	1	306
	Percent	26.85	0.09	26.94
	Row %	99.7	0.33	
	Collective %	27.33	5.00	
1	Frequency	811	19	830
	Percent	71.39	1.67	73.06
	Row %	97.71	2.29	
	Collective %	72.67	95.00	
Total		1116	20	1136
		98.24	1.76	100.00

Risk Factors for Venous Thromboembolism (VTE) in Patients Undergoing Cesarean Section



Racial Demographics

Race	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Black	174	15.32	174	15.32
Other	635	55.90	809	71.21
White	327	28.79	1136	100.00

Discussion

- Of the 830 patients who had at least 1 risk factor for VTE, only 19 patients received some form of pharmacologic prophylaxis.
- There is a significant difference (p-value = 0.0257) in the number of patients with risk factors receiving preventative treatment and those not receiving preventative treatment.
- A predominance of Hispanic and Black patients, making up over two-thirds of the population, was included in this study. Although this may limit the overall generalizability, it highlights the large number of risk factors in an already high-risk population that could benefit from the determination of adequate prophylaxis.
- In terms of limitations, this retrospective analysis obtained raw data from the HCA EDW. The integrity of the raw data relied on the use of procedure and diagnosis codes that may be missing on documentation, which may have likely excluded a significant number of risk factors and patients in this study.

Conclusion

- Currently, ACOG does not endorse one single risk scoring system; instead, ACOG recommends that consideration of the available scoring systems be made and that each facility develops its own protocol for VTE prevention. [2]
- Noting the ACCP guidelines, the development and consideration of a more specific protocol which takes into account known major risk factors for VTE could be of benefit to the high-risk population at our institution.
- Given the large number of risk factors associated with VTE in comparison to small number of those who actually received pharmacologic prophylaxis, the development of our own risk stratification guideline would be beneficial to determine and provide the appropriate level of prophylaxis.

References

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