Title:
Personalized Bleeding Risk Score to Optimize Post Coronary Intervention Outcomes

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Session Title:
Evidence-Based Practice Poster Session 1
Slot (superslotted):
EBP PST 1: Friday, 28 July 2017: 10:00 AM-10:45 AM
Slot (superslotted):
EBP PST 1: Friday, 28 July 2017: 12:00 PM-1:30 PM

Keywords:
Personalized Bleeding risk score and PCI outcomes, PCI related bleeding risk score and PCI-related Bleeding Avoidance Strategies

References:

1. Rao SC, Chhatriwalla A, Kennedy K et al. Pre-Procedural Estimate of Individualized Bleeding Risk Impacts Physicians' Utilization of Bivalirudin During Percutaneous Coronary Intervention. *Journal of the American College of Cardiology*. 2013; 61(18):1847-1852. doi:10.1016/j.jacc.2013.02.017.
2. Rao.S., McCoy L., Spertus J., et al., (2013). An Updated Bleeding Risk Model to Predict the Risk ofPost-procedural Bleeding Among Patients Undergoing Percutaneous Coronary Intervention. *JACC, Cardiovascular Interventions*, 2013; 6(9):897-904:doi:10.1016/j.jcin.2013.04.016
3. Aggarwal A, Banga S, McRae R, Mungee S, Kizhakekuttu T. TCT-459 Effect of Bleeding Complications as Assessed by the National Cardiovascular Data Registry (NCDR) Bleeding Risk Calculator in Patients Undergoing Primary Percutaneous Coronary Intervention. *Journal of the American College of Cardiology*. 2015;66(15): B188. doi:10.1016/j.jacc.2015.08.475.
4. Singh M. Bleeding Avoidance Strategies During Percutaneous Coronary Interventions. *Journal of the American College of Cardiology*. 2015;65 (20):2225-2238. doi:10.1016/j.jacc.2015.03.567.

5. Chhatriwalla A, Amin A, Kennedy K et al. Association Between Bleeding Events and In-hospital Mortality after Percutaneous Coronary Intervention. *JAMA*. 2013;309(10):1022. doi:10.1001/jama.2013.1556.

Abstract Summary:
Bleeding is the most common complication after percutaneous coronary intervention (PCI). It is associated with major adverse outcomes including mortality, morbidity, prolonged hospital stay and increased healthcare costs. PCI-related bleeding complications are predictable, preventable and is an ideal target for quality improvement through adopting an established bleeding predictor tool.
Learning Activity:

LEARNING OBJECTIVES	EXPANDED CONTENT OUTLINE
The learn will be able to understand the importance of implementing a standardized bleeding risk predictor tool prior to percutaneous coronary intervention (PCI).	Pre-procedural bleeding risk prediction will promote clinical decision making and enable the provider to apply bleeding avoidance strategies.

The learner will be able to optimize the PCI outcomes	Personalized pre-procedural bleeding risk estimation will minimize bleeding complications, hence it would reduce the need for blood transfusion, which will ultimately result decreased mortality / morbidity, length of stay and cost containment.

Abstract Text:

Purpose: To examine the effect of implementing a standardized bleeding risk score in minimizing bleeding complications in adult patients undergoing percutaneous coronary intervention

Background: Bleeding is the most common complication after percutaneous coronary Intervention (PCI). PCI–related bleeding events are associated with increased mortality, morbidity, cost and length of stay (LOS). Based on the Centers of Medicare and Medicaid Services Acute Care Episode Demonstration Program, PCI-related bleeding is considered a quality indicator for PCI outcome. According to 2011 AHA/ACC PCI guidelines, all the patients undergoing PCI need to be evaluated for their bleeding risk prior to the procedure. Personalized bleeding risk score (BRS) can predict and prevent PCI-related bleeding complications. The National Cardiovascular Data Registry (NCDR) CathPCI bleeding risk score (BRS) is a validated bleeding risk predictor tool which is readily available however, it is underutilized in the clinical setting.

Methods and Results: A quality improvement study was proposed and implemented in a cohort of sequential patients (n=128 electively scheduled for PCI. Retrospective data of patients who were reported to have had bleeding complications requiring blood transfusion and extended length of stay (LOS) were retrieved electronically. Then, an educational intervention was instituted to implement the BRS assessment tool and to use an expanded PCI-specific bleeding definition to document post-PCI bleeding. PCI-related bleeding complications, prior to initiation of the CathPCI bleeding risk tool (n=64) was compared to those who had pre-procedural estimation of bleeding risk (n=64) before undergoing PCI. Pre-procedural estimation of bleeding risk has had significantly (p=0.00) reduced the rate of PCI-related bleeding complications. The use of a bleeding risk tool supported clinician’s selection of the appropriate treatment modalities such as coronary artery bypass graft (CABG) vs. percutaneous coronary intervention vs. medical therapy; assisted in the selection of stent type, drug eluting vs. bare metal, helps in the choice of type and duration of antiplatelet therapy, aids in careful attainment of vascular access radial vs. femoral artery, and influenced the use of vascular closure device vs. manual compression to reduce a patient’s chances of developing bleeding complications.

Conclusion: Estimating pre procedural bleeding risk guides clinical decision making to promote bleeding risk adjusted therapy and which achieves better clinical outcomes. The study concluded that implementing the NCDR CathCPI bleeding risk score and using an expanded PCI specific bleeding definition together have effectively reduced the number of blood transfusions and length of stay.