Association between bleeding avoidance and outcomes: Japanese coronary intervention registry report in collaboration with ACC-NCDR

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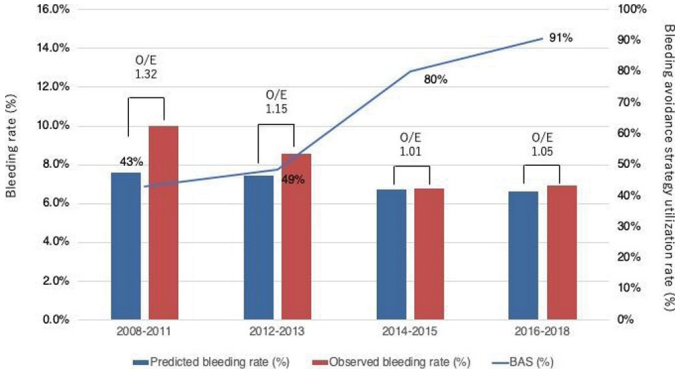
Background: Bleeding avoidance strategies (BASs) such as radial access and closure device use for femoral access have been increasingly being implemented but its association with bleeding events among East Asians with reported higher bleeding risk remains unclear.

Purpose: To demonstrate the performance of the National Cardiovascular Data Registry (NCDR) CathPCI bleeding risk score, 10-year trend of BAS utilization rate and its relationship with observed bleeding within a Japanese PCI quality improvement initiative established in collaboration with the American College of Cardiology-NCDR.

Methods: A cohort of 19,656 consecutive Japanese patients undergoing PCI was included. First, we assessed the discrimination of the validated NCDR CathPCI bleeding score in the study population. We then assessed temporal trends in the implementation of BAS for PCI and calculated the observed versus expected bleeding rate [O/E ratio] in four time periods (T1: 2008–2011, T2: 2012–2013, T3: 2014–2015, T4: 2016–2018). In multivariable logistic models, we calculated the correlation between BAS use and bleeding rates in individual time frames.

Results: During the study period, the application of BAS increased from 42.2% (T1) to 90.3% (T4) and observed bleeding rate declined from 10.2% (T1) to 7.3% (T4). The discrimination of the NCDR CathPCI bleeding risk score was acceptable in the Japanese population (c-statistics 0.760–0.845). The calculated O/E ratio declined from 1.34 (T1) to 1.14 (T4). The use of radial access and vascular closure devices after transfemoral access use was associated with 46.7–56.6% and 25.6–47.5% bleeding reduction rates, respectively. The correlation between greater BAS adoption and the decline in bleeding rates was greater among elective cases than urgent/emergent cases.

Conclusion: Our findings support the positive impact of the adoption of BAS in Japanese patients undergoing PCI. This study demonstrates the value of common data standards and risk adjustment developed in registries to support high quality care.



Trends in BAS use & Bleeding Rate