

Impact of Diabetes Mellitus Type 2 on Clinical In-Stent Restenosis in First Elective Percutaneous Coronary Intervention Patients

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Abstract : Background: Diabetes Mellitus type 2, small vessel calibre, stented length of vessel, complex lesion morphology, and prior bypass surgery have resulted risk factors for In-Stent Restenosis (ISR). However, there are some contradictory results about body mass index (BMI) as a risk factor for ISR. Purpose: We want to identify clinical, lesional and procedural factors that can predict clinical ISR in our patients. Methods: Were enrolled 759 patients who underwent first-time elective PCI with Bare Metal Stents (BMS) from September 2011 to December 2013 in our Department of Cardiology and followed them for at least 1.5 years with a median of 862 days (2 years and 4 months). Only the patients re-admitted with ischemic heart disease underwent control coronary angiography but no routine angiographic control was performed. Patients were categorized in ISR and non-ISR groups and compared between them. Multivariate analysis - Binary Logistic Regression: Forward Conditional Method was used to identify independent predictive risk factors. P was considered statistically significant when <0.05 . Results: ISR compared to non-ISR individuals had a significantly lower BMI (25.7 ± 3.3 vs. 26.9 ± 3.7 , $p=0.004$), higher risk anatomy (LM + 3-vessel CAD) (23% vs. 14%, $p=0.03$), higher number of stents/person used (2.1 ± 1.1 vs. 1.75 ± 0.96 , $p=0.004$), greater length of stents/person used (39.3 ± 21.6 vs. 33.3 ± 18.5 , $p=0.01$), and a lower use of clopidogrel and ASA (together) (95% vs. 99%, $p=0.012$). They also had a higher, although not statistically significant, prevalence of Diabetes Mellitus (42% vs. 32%, $p=0.072$) and a greater number of treated vessels (1.36 ± 0.5 vs. 1.26 ± 0.5 , $p=0.08$). In the multivariate analysis, Diabetes Mellitus type 2 and multiple stents used were independent predictors risk factors for In-Stent Restenosis, OR 1.66 [1.03-2.68], $p=0.039$, and OR 1.44 [1.16-1.78], $p=0.001$, respectively. On the other side higher BMI and use of clopidogrel and ASA together resulted protective factors OR 0.88 [0.81-0.95], $p=0.001$ and OR 0.2 [0.06-0.72] $p=0.013$, respectively. Conclusion: Diabetes Mellitus and multiple stents are strong predictive risk factors, whereas the use of clopidogrel and ASA together are protective factors for clinical In-Stent Restenosis. Paradoxically High BMI is a protective factor for In-stent Restenosis, probably related to a larger diameter of vessels and consequently a larger diameter of stents implanted in these patients. Further studies are needed to clarify this finding.

Keywords : body mass index, diabetes mellitus, in-stent restenosis, percutaneous coronary intervention

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