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Short and long term prognosis of new drug eluted stents in diabetics on metformin

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Background: Metformin has been shown to impair endothelialization of the new generation DES in rabbit models by interfering with the mTOR signaling pathway. In the absence of clinical trial that assesses the effect of metformin on clinical outcomes, we present a retrospective cohort study to determine if diabetics on metformin are at a higher risk of target lesion revascularization 6years after deployment of the newer generation DES.

Methods: Among 6000 patients who had a paclitaxel, or a limus-eluted stent placed between 2004 and 2009, 350 diabetics were included in the study. Their charts were reviewed for the occurrence of myocardial infarction, revascularization of the target lesion or death. Kaplan-Meier Curves were analyzed to determine whether any statistically significant difference in the primary endpoint of lesion revascularization and death exists among diabetics with metformin and those without it.

Results: Around 400 patients were included in the study among which 50% were on metformin. Those patients had 457 new generation drug eluted stents deployed between the years of 2004 and 2009. The mean age was 62 years with 61% being men. Almost all patients were on dual antiplatelet therapy. No difference existed between the two groups of patients with and without metformin in relation to Hba1c, renal function, ejection fraction, chronic antiplatelets and anticoagulation acutely administered. In total, 59 stents had to be re-vascularized (13%). In the group of patients on metformin, one case of thrombosis was recorder and 12% of the DES had a repeat PCI compared to 13% in the group without metformin, $p=0.2$. There was no difference between both groups when revascularization, myocardial infarction and death results were combined ($p=0.08$).

Conclusion: The previously demonstrated histological impairment in endothelialization of the newer DES while on metformin did not translate clinically in an increase in target lesion revascularization nor in death in the group who was on metformin during the short or long term follow up of 6 years.

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