

# THE TITANIUM-NO STENT IN REAL WORLD: RESULTS FROM A MULTI-CENTER REGISTRY

## BACKGROUND

Five to 15% of the population have allergy to nickel, chromium or molybdenum which is a potential cause for in-stent restenosis. The Titan stent is made of stainless steel and coated with Titanium Nitride Oxide (TiNOX) which completely prevents discharge of metal elements. A small double blinded controlled study has shown recently that TiNOX stent reduces restenosis and MACE. However, Cardiogenic shock patients were excluded from this study. Therefore, we performed a real life multi-center registry to assess short and long term results of the Titan stent.

## PURPOSE AND RESULTS

- This **real life registry** included all patients candidate for stent implantation. Choosing of Titan stent was at the operator discretion with **no exclusion criteria** except cardiogenic shock.
- Outcome data included immediate technical and clinical success, complications, and MACE (sub-acute thrombosis, MI, TLR and death) at 30 days and 6 months.
- Follow-up was performed by an independent research nurse.
- A total of 333 Titan stents were implanted in 296 patients.
- Patients were  $68.8 \pm 11.8$  years old (246 men).
- Risk factors included hypercholesterolemia (61.3%), hypertension (51.3%), DM (36.6%) and current smoking (27.6%).
- Indications for PCI were ACS (81%), stable AP (9.6%) and silent ischemia (9.4%).
- 62% of the treated lesions were of type B2 or C.
- Lesion length was  $17.5 \pm 14.8$  mm and stent diameter was  $3.0 \pm 2.12$  mm.
- Indications for stenting were prevention of restenosis (55.4%), residual stenosis (9.9%), dissection (6.9%), acute MI (23.7%) and in-stent restenosis (3.9%).
- Procedural success was 99.4%.

### MACE at 30 days and 6 months follow up:

Type	30 days - % (no)	6 months - % (no)
Death	0.3 (1)	0.7 (2)
TVR	0.6 (2)	5.7 (17)
TLR-PCI	0.6 (2)	5.1 (15)
TLR-CABG	0	0.6 (2)
QWMI	0.3 (1)	0.3 (1)
NQWMI	0.3 (1)	0.3 (1)
Total patients with MACE	1.0 (3)	6.3 (19)

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## DISCUSSION

- Restenosis reaches plateau at different terms: 6 months after BMS, 9-12 months after DES implantation. Therefore, it is more appropriate to compare restenosis rate, MACE and TLR of various stents at their plateau of restenosis rather than after fixed period of time.
- When comparing our Titan results to 12 months follow up of the Israeli Cypher registry (similar protocol to Titan), MACE were 7.0% and 5.7%, for Titan and Cypher respectively (P=NS), TVR was 5.7% and 3.9%, respectively (P=NS) and death rate was 0.6% and 1.4%, respectively (P=NS).
- Although there was no significant difference between the results of the two registries, it seems that Cypher involves less neointimal hyperplasia than Titan, but might be responsible for a higher rate of sub-acute and late thrombosis and subsequent death.
- Since death is an ultimate and irreversible complication, its clinical importance exceeds that of other MACE such as TLR and hospital admissions.

## CONCLUSION

In conclusions, the Titan stent has a remarkable safety profile in high risk patients and complex coronary lesions. After qualitative adjusting for the significance of different MACE, our study suggests that Titan is clinically comparable to DES.

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