



Tolerability of isosorbide dinitrate after coronary artery bypass grafting with radial artery grafts



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Background

- In coronary artery bypass grafting (CABG), the saphenous veins, internal thoracic arteries, or radial arteries may all be used as revascularization options
- Radial artery grafts have low rates of atherosclerosis, which has been shown to result in improved graft function, especially in younger patients
- However, due to its thicker media smooth muscle layer, radial arteries may be at increased risk for vasospasm, which could result in adverse cardiac outcomes
- Vasodilators like isosorbide dinitrate (ISDN) may be used to limit the risk of vasospasm but the optimal dose is unknown and there is a risk of hypotension
- Objective:** to determine tolerability of ISDN in patients after CABG with radial artery grafts

Methods

- Design:** retrospective, cross-sectional chart review
- Patient Identification:** prescribed ISDN between January 1st, 2010 and December 31st, 2015 at SPH 5B/CSICU
- Inclusion:** adults, CABG with radial artery grafts, on ISDN to prevent vasospasm
- Exclusion:** on ISDN for other indications
- Primary Outcome:**
 - % of patients who require a dosing modification or permanent discontinuation of ISDN during their index hospitalization
- Secondary Outcomes:**
 - % of patients with hypotension or symptomatic hypotension at any time during their index hospitalization
 - % of patients who require a dosing modification or permanent discontinuation of β -blocker during their index hospitalization
- Definitions:**
 - hypotension (systolic blood pressure \leq 90 mmHg)
 - symptomatic hypotension (documented dizziness, lightheadedness, or some other variation)
 - dosing modification (dose reduction, dose omission, or frequency reduction)
- Statistics:** descriptive statistics, convenience sample

Results

Figure 1. Patient chart identification

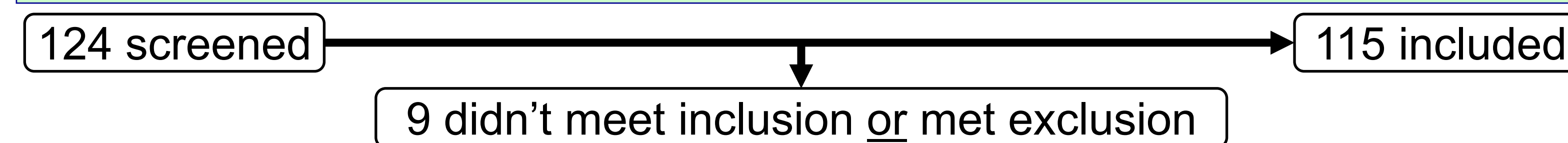


Table 1. Baseline and post-operative characteristics (n=115)

Mean age – years \pm SD	59.5 \pm 8.2
Male sex – no. (%)	114 (99.1)
Hypertension – no. (%)	86 (74.8)
Median number of grafts – no. [range]	4 [2-8]
Radial artery – no. [range]	2 [1-4]
Saphenous vein – no. [range]	0 [0-4]
Internal thoracic – no. [range]	2 [0-4]
IV NTG infusion started – no. (%)	113 (98.3)
Mean duration – hours \pm SD	15.9 \pm 5.6
ISDN started after NTG discontinued – no. (%)	91 (79.1)
Started on POD 1 – no. (%)	112 (97.4)
Started at 10 mg PO TID – no. (%)	110 (95.7)
Mean post-operative stay – days \pm SD	5.8 \pm 2.5

Table 2. Primary outcome: % ISDN dosing modification or discontinuation (n=115)

Any dosing modification or discontinuation on discharge – no. (%)	85 (73.9)
Only dosing modification – no. (%)	73 (85.9)
Only discontinuation on discharge – no. (%)	2 (2.4)
Both dosing modification & discontinuation on discharge – no. (%)	10 (11.8)

Figure 2. ISDN dosing modification: A) Daily occurrence of any ISDN dosing modification as a percentage of patients still admitted to hospital, B) Total occurrence of any ISDN dosing modification throughout hospital stay (total=166)

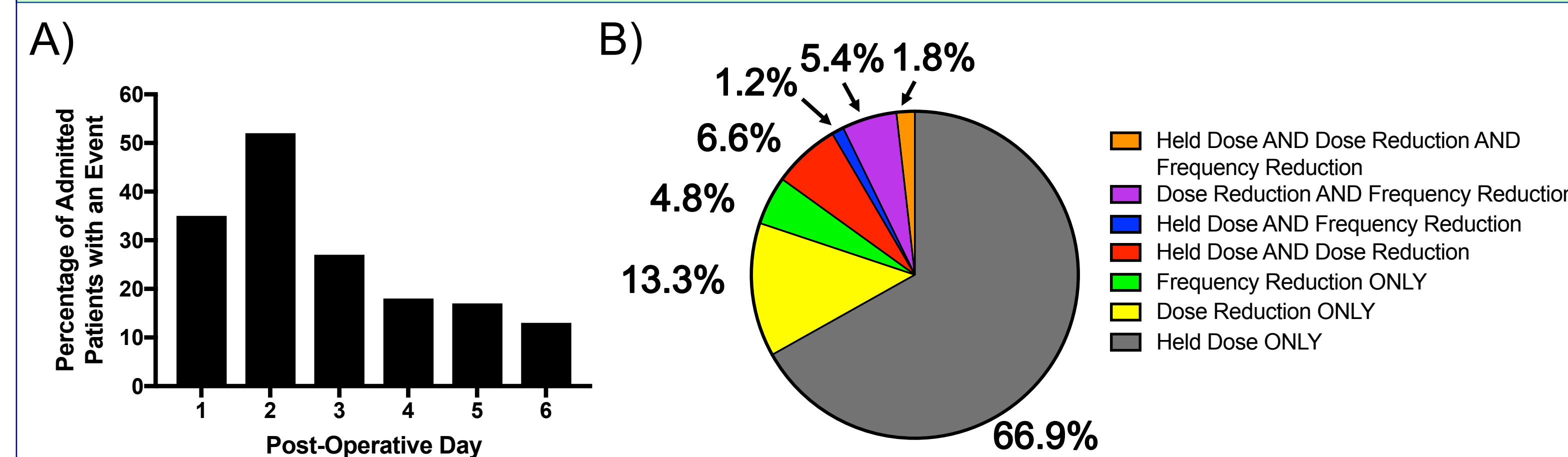


Table 3. Secondary outcome: % hypotension or symptomatic hypotension (n=115)

Any hypotension or symptomatic hypotension – no. (%)	74 (64.3)
Only hypotension – no. (%)	30 (40.5)
Only symptomatic hypotension – no. (%)	18 (24.3)
Both hypotension and symptomatic hypotension – no. (%)	26 (35.1)

Figure 3. Hypotensive events: A) Daily occurrence of any hypotension or symptomatic hypotension as a percentage of patients still admitted to hospital, B) Total occurrence of any hypotension or symptomatic hypotension throughout hospital stay (total=143)

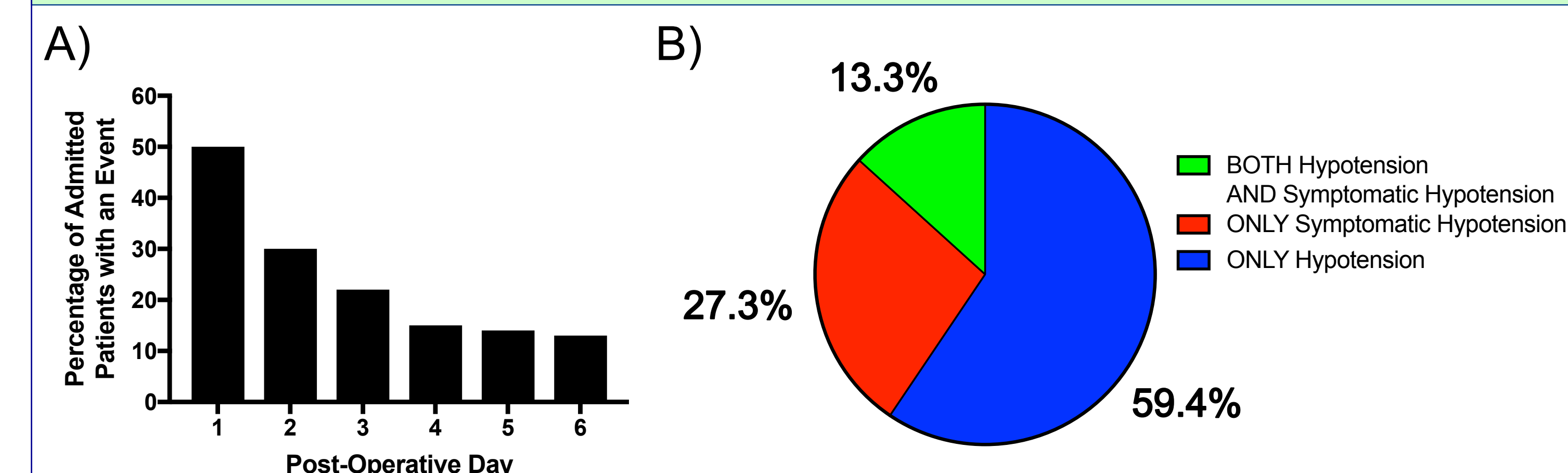
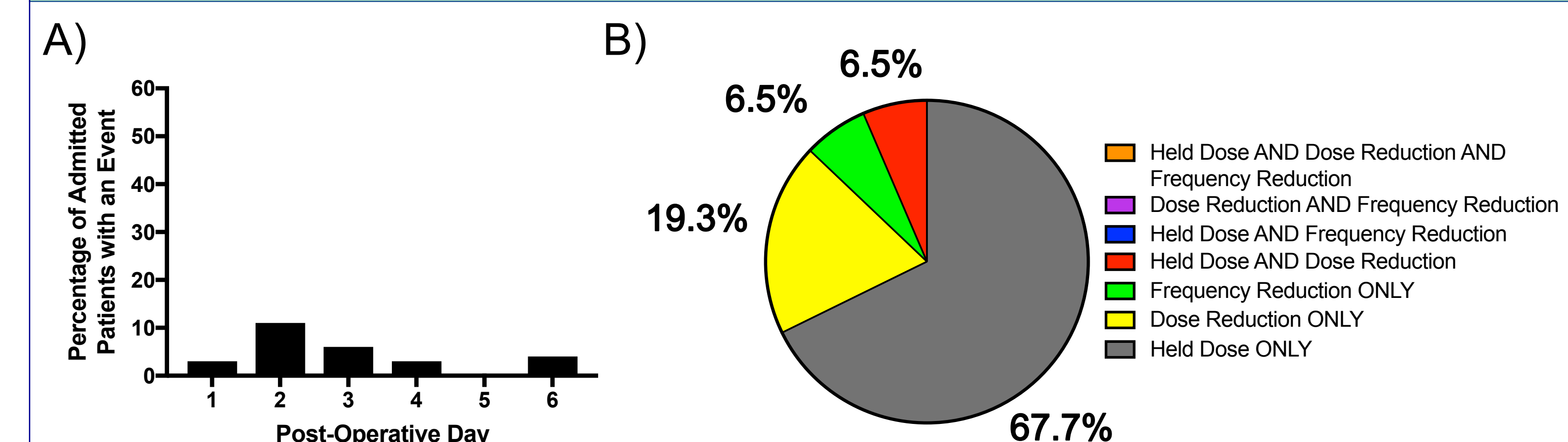


Table 4. Secondary outcome: % β -blocker dosing modification or discontinuation (n=112)

Any dosing modification or discontinuation on discharge – no. (%)	29 (25.9)
Only dosing modification – no. (%)	23 (79.3)
Only discontinuation on discharge – no. (%)	6 (20.7)
Both dosing modification & discontinuation on discharge – no. (%)	0 (0.0)

Figure 4. β -blocker dosing modification: A) Daily occurrence of any β -blocker dosing modification as a percentage of patients still admitted to hospital, B) Total occurrence of any β -blocker dosing modification throughout hospital stay (total=31)



Other Results

- 11% of all patients were unable to be discharged on ISDN and 53% of all ISDN discharge regimens were at target dose (10 mg PO TID)
- On average, patients who experienced hypotension or symptomatic hypotension had 2 such events during their index hospitalization
- Highest risk for hypotension or symptomatic hypotension was POD 1 to 3

Limitations

- Retrospective, descriptive study with small sample size of convenience
- Multiple confounders exist

Conclusions

- Starting ISDN at 10 mg PO TID post-CABG resulted in the majority of patients requiring a dose modification and experiencing hypotension
- Further studies are required to determine the optimal starting and target doses for ISDN