Simultaneous Hybrid Revascularization by Carotid Stenting and Coronary Artery Bypass Long-term Results of the SHARP Study

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Surgical treatment of carotid and multivessel coronary artery obstructive disease by conventional CEA and CABG results in higher morbidity and mortality compared to each single procedure
SIMULTANEOUS HYBRID REVASCULARIZATION BY CAROTID STENTING AND CABG (SHARP) PROTOCOL

Aim of the Protocol

To reduce operative risk and minimize surgical trauma as compared to traditional combined surgical carotid endoarterectomy and CABG
Materials and Methods

- 95 consecutive pts (Jan. 2005 - Jul. 2013)
- Mean age 69 ± 8 yrs, Males 79 (83%)
- Carotid (>70% stenosis) and multivessel /LM coronary artery disease
- EuroScore I: 8.6% ± 7.3%
- EuroScore II: 3.4% ± 2.4%
- Bilateral carotid stenosis ≥50% <70%: 65 pts (68%)
- Urgent CABG: 48 pts (50%)
- Off-pump CABG: 15 pts (16%)
- Mean follow-up: 48 ± 34 (2-108) months, complete 97%
Treatment Protocol

**CAS**
- Heparin
  - 1 mg/Kg for CAS
  - 2 mg/Kg for CABG

**CABG (simultaneous)**
- Clopidogrel 300 mg (no bleeding)

**6 hrs**
- PO #1 (for 30 days)
  - Clopidogrel 75 mg + Cardioaspirin 100 mg

**> 30 days**
- Cardioaspirin

**SHARP PROTOCOL**

TOR VERGATA
SHARP PROTOCOL

Results

In-hospital Mortality

2.1%
SHARP PROTOCOL

In-Hospital Morbidity

- Periprocedural stroke 0%
- Transient ischemic attacks 3.2%
- Perioperative myocardial infarction 0%
- Re-exploration for bleeding 4.2%
FREEDOM FROM LATE DEATH

(Follow-up 48 ± 34 months, 7 deaths)

SHARP PROTOCOL
Independent Predictor of Late Death:

• Preoperative lower value of LVEF
  (43% vs. 54%; HR: 7.7, P = 0.007)
**Freedom from Cardiac Death**

(3 deaths)

Pts at risk

92 67         58         50          41          36         29          16           5           1

96 ± 2

SHARP PROTOCOL

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Freedom from CAS-related Stroke

SHARP PROTOCOL
FREEDOM FROM NEUROLOGICAL EVENTS

(5 events)

Pts at risk

92 67 58 50 41 36 29 16 5 1

90 ± 7

SHARP PROTOCOL

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CONCLUSIONS

• The proposed hybrid approach presents a mortality rate comparable to that of isolated CABG

• CABG immediately following CAS minimizes the risk of periprocedural myocardial infarction
The rationale of the SHARP Protocol

• ↓ Risk of myocardial infarction, by reducing interval between the two procedures
• ↓ Risk of bleeding during CABG

(no Clopidogrel antiaggregation administered before surgery)
CONCLUSIONS -2

• At a long-term period, a high rate of event-free survival and freedom from neurological events can be expected