

## ABSTRACT

**Background:** To preserve adequate cerebral perfusion during carotid endarterectomy (CEA) strict arterial blood pressure (BP) control, with a BP between the 'awake level' and 20% above baseline during cross-clamping is advocated. However, the reference value of this 'awake BP' has remained undefined. Therefore, the aim of our study was to define clinical 'awake BP' in CEA patients.

**Methods:** Of 1124 patients who underwent CEA under general anesthesia, all non-invasive BP measurements were retrospectively collected. The BP was determined directly before induction in the operating room (OR), 0, 1, 2, 3 days before surgery and on the ward and during the preoperative outpatient screening (POS). Mean difference between pre-induction BP and all other BP measurements were evaluated. A difference of more than 10mmHg was considered clinically relevant.

**Results:** Pre-induction BP in the OR was 163±27/89±15 mmHg with a MAP of 116±18mmHg (Mean±SD). On the ward BP was 143±23/76±12 (MAP 98±15), 145±23/76±12 (MAP 99±14), 141±24/77±13 (MAP of 98±15), 145±25/77±13 (MAP of 99±15) for 0, 1, 2 and 3 days pre-operatively (All p<0.01 vs. pre-induction). On the POS BP was 147±23/80±12 (MAP 102±14mmHg; p<0.01 vs. pre-induction). In 736 patients (68%) pre-induction BP in the OR was ≥ 10mmHg higher compared to preoperative BP measured on the ward or outpatient preoperative evaluation clinic.

**Conclusion:** Pre-induction BP measured in the OR is significantly higher compared to any other preoperative BP measurement and should therefore not be used to guide intraoperative BP management. We suggest that 'awake BP' could be determined by averaging BP values collected preoperatively.

## PURPOSE

### During CEA: strict BP regulation essential

= Adequate cerebral perfusion

- BP↓ → hypoperfusion → ischemia
- BP↑ → hyperperfusion → CHS
- BP↑↓ → postoperative strokes

### Intraoperative BP management

Stoneham: arterial BP between normal & 20% above baseline

- White coat hypertension?
- Stress?



## AIM

**What is the 'awake' baseline BP of patients undergoing CEA?**

## METHODS

1124 CEA patients of UMCU  
June 2003 – March 2017

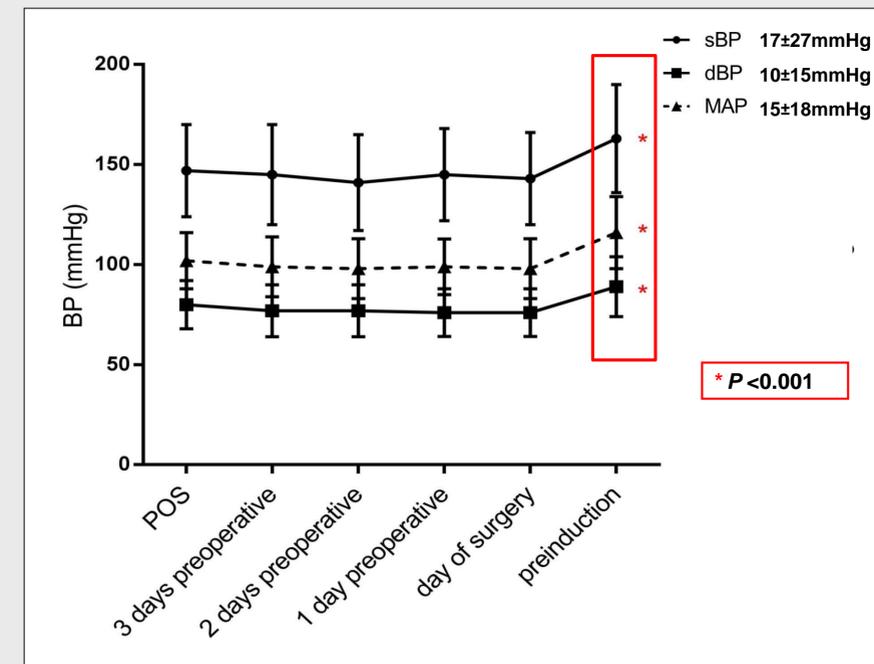
Blood pressure measurements:

- Pre-induction BP
- 0,1,2,3 days preoperative BP
- Preoperative outpatient screening (POS) BP

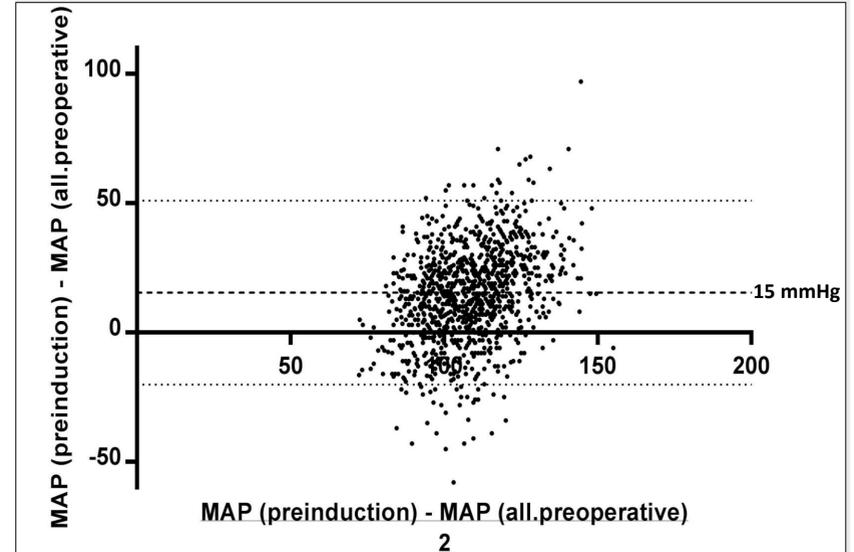
≥10 mmHg difference → clinical relevant

## RESULTS

Baseline characteristics	Total (n=1124)
Age, years ±SD	69±10
Gender, male (%)	785 (70)
Symptomatic, (%)	1011 (90)
Hypertension, (%)	847 (75)
Hypercholesterolemia, (%)	738 (66)
Smoking, (%)	387 (34)
Statin-use, (%)	933 (83)
β-blockers, (%)	468 (42)
Pre-induction systolic BP, mmHg ±SD	163±27
Pre-induction diastolic BP, mmHg ±SD	88±15
Pre-induction MAP, mmHg ±SD	116±18



## RESULTS



## CONCLUSION

Pre-induction BP is significantly higher compared to any other preoperative BP measurement

Intraoperative BP management NOT on pre-induction BP

### Recommendation

Intraoperative BP management should be based on (mean of) preoperative BP measurements

## DISCLOSURES

None