



Cerebral oximetry: sensibility and specificity in awake carotid endarterectomy

Meleiro H.¹, Correia I.¹, Neves J.², Sousa J.², Afonso G.¹

¹Anaesthesia Department, ²Vascular Surgery Department, Centro Hospitalar São João EPE

Background and Goal of Study:

Cerebral monitoring during carotid endarterectomy (CEA):

- Bilateral regional cerebral oxygen saturation (rSO₂) with near infrared spectroscopy (NIRS);
- Neurological exam (*gold-standard*).

Goal of study:

Evaluate cerebral oximetry (INVOS 5100) accuracy in detecting cerebral ischemia on patients undergoing awake carotid endarterectomy under cervical plexus block.

Materials and Methods:

Study:

- Retrospective study
- Patients scheduled for CEA
- October 2014 to July 2015

Inclusion criteria:

- Awake patients (regional anaesthesia) with bilateral regional cerebrovascular oxygen saturation (rSO₂) monitoring during procedure .

Exclusion criteria:

- Conversion to general anaesthesia.
- Absence of rSO₂ records before or after carotid clamping.

A decrease >20% from baseline value of rSO₂ was considered as the ischemic threshold.
Changes in rSO₂ were compared to intraoperative patient clinical status.

All analysis were calculated with SPSS 20.0. p-value<0.05 was considered to be statistically significant.

Results and Discussion:

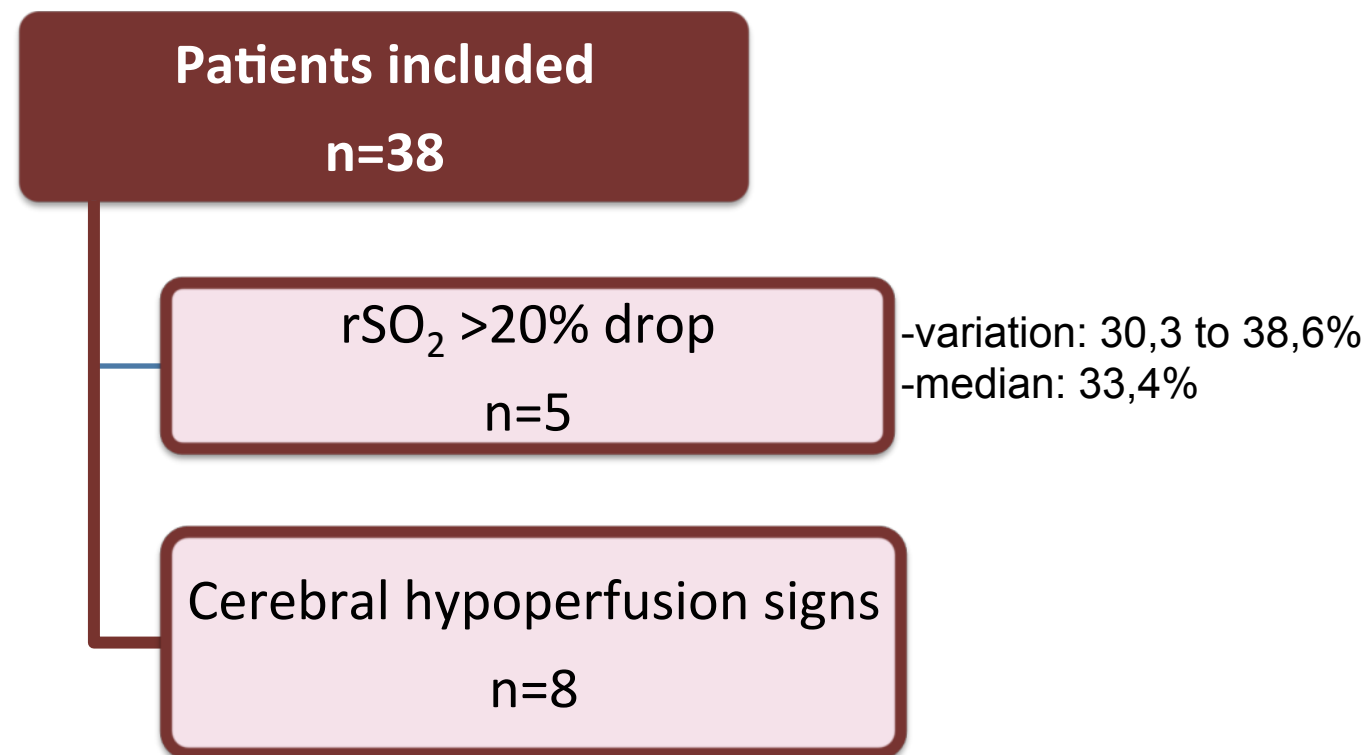


Figure 1: Number of patients with significant rSO₂ drop and patients with neurological deterioration.

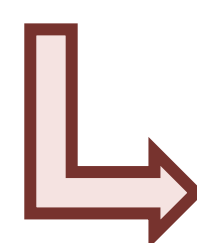
Table 1: Comparison rSO₂ vs. neurologic exam.

		rSO ₂ >20% drop	
		Yes	No
Neurologic deterioration	Yes (n=8)	2	6
	No (n=30)	3	27

Discussion conclusion:

In this study INVOS 5100 when compared to the gold standard showed:

- Sensibility of 25%
- Specificity de 90%



High negative predictive value but low positive predictive value

- The utility of rSO₂ appears to be modest to predict ischemia after clamping ICA
- Neurological clinical evaluation remains the best way to monitor these patients.