QUANTITATIVE PUPILLOMETRY INDEX (QPI) IN COMATOSE PATIENTS AFTER CARDIAC ARREST

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INTRODUCTION

Evaluating pupillary reactivity is crucial in assessing unconscious patients after cardiac arrest (CA). The Neurological Pupil Index (NPi) is an accurate predictor of unfavorable neurological outcomes (UO). A new index, the Quantitative Pupillometry Index (QPI), has emerged, but there are no prognostic data on its use in post-CA patients.

OBJECTIVES

This study **compared the prognostic value of NPi and QPI** in unconscious patients post-CA.

METHODS

Prospective ongoing double-center study (April 2023).
Comatose patients after cardiac arrest.
Both pupillometries measurements at 24, 48, 72 hours after CA.
The lowest QPI and NPI value at each measurement.
Other prognostic tools following the ESICM guidelines.
Neurological Outcome at 3 months performed by telephone interview or during follow-up visits.
UO was defined as Cerebral Performance Category (CPC) 3-5.

CONCLUSIONS

In our study, QPI showed a **good prognostic value** in unconscious patients after CA.

DESCRIPTIVES

98 patients enrolled, 81 with available follow-up data.
OHCA was observed in 49% of patients.
UO at 3 months was observed in 72% of patients.
The main cause of death was WLST in 56% of patients.

RESULTS

QPI and NPi showed a **strong correlation over time** (P_s = 0.70; P_s = 0.65; P_s = 0,69; P_s = 0.68 for 24, 48, 72 hours and at any time (AT) during the first 72 hours, respectively; p<.001).
The area under receiver operating characteristic (AUROC) of QPI to predict UO was 0.77, 0.83, 0.84, 0.85 at 24, 48, 72 hours and AT respectively.
A QPI ≤2 at 72 hours showed a **specificity of 100%** and a sensitivity of 57% to predict **UO**.

Index	Outcome	24 hours		48 hours		72 hours		Any Time (AT)	
NPi	😞	3.5 [1.9-4.2]	p=0.114	3.8 [2.3-4.3]	p=0.01	3.3 [2.6-3.8]	p<.001	2.6 [1-3.5]	p<.001
	😊	3.8 [3.4-4.3]		4.3 [3.9-4.5]		4.4 [4.2-4.57]		3.8 [3.4-4.2]	
QPI	😞	2 [1-3]	p<.001	2 [0-3]	p<.001	2 [1-3.7]	p<.001	1 [0-2]	p<.001
	😊	3 [3-4]		4 [3.7-4]		4 [4-5]		3 [3-4]	