

# ROLE OF PCT IN IDENTIFICATION OF ICU SECONDARY INFECTIONS IN SEVERE COVID-19 PATIENTS: A RETROSPECTIVE STUDY

Simone Campani<sup>1</sup>, Marta Talamonti<sup>1</sup>, Lorenzo Dall'Ara<sup>1</sup>, Ilenia Gatto<sup>1</sup>, Emanuela Biagioni<sup>1</sup>, Irene Coloretti<sup>1</sup>, Martina Tosi<sup>1</sup>, Massimo Girardis<sup>1</sup> and the MO-COVID19 Working Group

<sup>1</sup> Anesthesia and intensive care unit, Policlinico of Modena

## BACKGROUND

- In COVID-19 critically ill patients, 2ry bacterial infections occurred more commonly than others
- PCT is considered a valuable biomarker for antimicrobial stewardship

## AIM

whether the measuring of PCT in a structured protocol was effective in predicting the occurrence of secondary infections in COVID-19 patients

## METHODS

- Patients were divided in two groups based on the development of 2ry infections.
- For the group without 2ry infections we took the PCT at Day 11 (according to the onset day's median of 2ry infections)

## POPULATION

279 patients

PCT (ng/ml; median, IQR): 0,2 (0,1 – 0,6)

P value for PCT <0,001

## NO 2ry infection

110 patients

PCT (ng/ml; median, IQR): 0,1 (0,1 – 0,12)

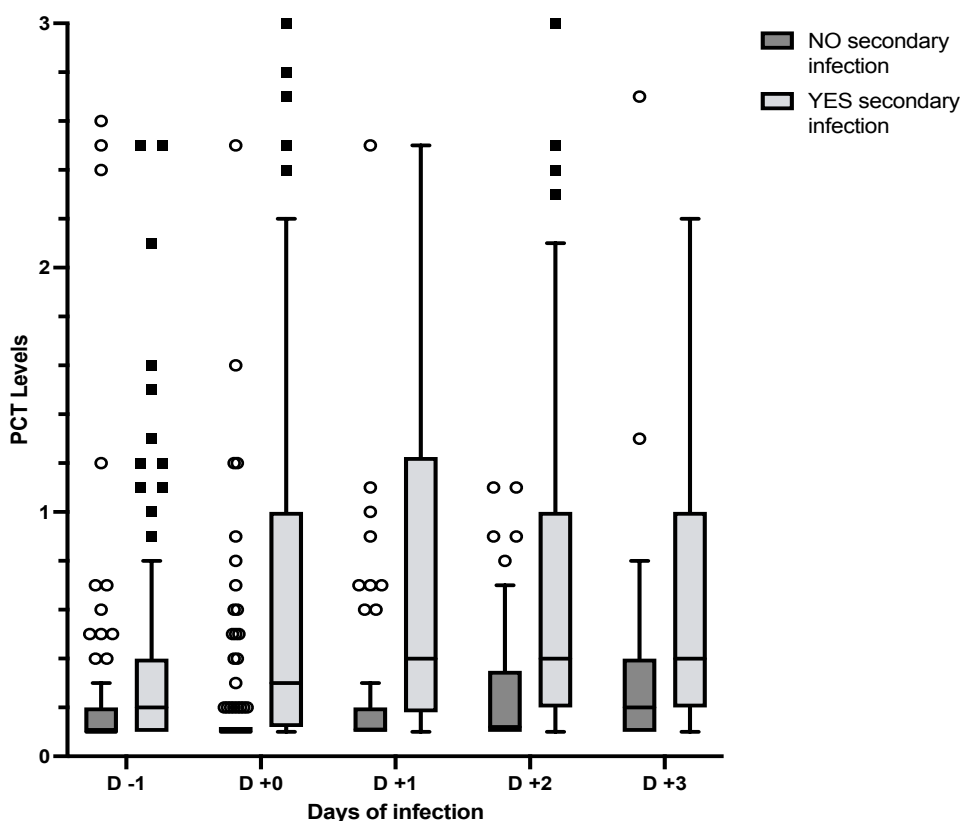
## YES 2ry infection

169 patients

PCT (ng/ml; median, IQR): 0,3 (0,12 – 1,0)

Onset time of new infection (days; median, IQR): 11 (6 - 16)

## PCT level comparison



	PCT ≥ 0,16
Sen	71% (63,5 – 77,7)
Spec	76,4% (67,3 – 83,9)
PPV	82,5% (75,3 – 88,2)
NPV	62,7% (53,9 – 71)
Acc	73,1% (67,5 – 78,2)
	PCT ≥ 0,25
Sen	61,9% (53,2 – 68,4)
Spec	83,6% (75,4 – 90)
PPV	85,3% (77,8 – 91,1)
NPV	57,8% (49,7 – 65,6)
Acc	69,8% (64 – 75,1)
	PCT ≥ 0,5
Sen	43,2% (35,6 – 51)
Spec	86,4% (78,5 – 92,2)
PPV	83,2% (73,7 – 90,3)
NPV	49,3% (42 – 56,6)
Acc	60% (54 – 65,8)

**Graph 1:** PCT levels comparison from 1 day before 2ry infection to 3 day after it In both groups.

**Table 1:** PCT Cut-Off Values obtained with a ROC curve

## CONCLUSIONS

Our study succed to demostrate that PCT measuring in ICU patients with COVID-19 can aid in identifying secondary bacterial infections prior to the results of microbiological cultures and initiate the antimicrobial therapy. We suggest to use a PCT Cut-Off value of 0.16 ng/ml to predict secondary infections.