HOST BIOMARKERS FOR THE DIAGNOSIS OF SEVERE IMPORTED *PLASMODIUM FALCIPARUM* MALARIA

INTRODUCTION:

Severe imported Plasmodium falciparum malaria is a source of mortality and morbidity in non-endemic regions. Hyperparasitaemia is a finding which doesn't accurately predict severity in these population. Therefore, there is a need to evaluate biomarkers as a tool to better discriminate patients with severe malaria.

METHODS:

Case-control study including patients with P.falciparum malaria attended at Hospital Clinic of Barcelona (Spain). Participants were classified as severe and non-severe malaria according to WHO criteria, except for parasitaemia. Angiopoietin-1 (ANG-1), angiopoietin-2 (ANG-2) and s-TREM-1 concentrations were determined. Biomarker concentrations were compared between groups and with different reference parasitaemia cut-off values (2% following European guidelines and 10% according to WHO).

RESULTS:

- 73 participants were included: 13 severe and 60 non-severe malaria cases.
- Median ANG-1 concentration was statistically lower in severe than in non-severe cases (p=0.001) whereas median ANG-2 and s-TREM-1 concentrations were higher in severe cases (p=0.001 and p=0.010, respectively).
- The ratio ANG-2/ANG-1 was higher in the severe group (5.51 vs 0.45, p<0.0023)

Table 1 ANG1/ANG2 Sensitivity, specificity , positive and negative predictive values and false positive/negative values using different cut-off values.

	CUT-OFF values	SENSITIVITY	SPECIFICITY	POSITIVE PV	NEGATIVE PV	FALSE NEGATIVE	FALSE POSITIVE
ANG2/ANG1	1	84.6%	73.3%	40.7%	95.7%	15.4%	26.7%
	1.37	76.9%	83.6%	50%	94.3%	23.07%	16,66%
	2	69.2%	56.7%	52.9%	92.9%	30.8%	13.3%
	4	69.2%	95%	75%	93.4%	30.8%	5.0%
PARASITAEMIA	2	80.0%	53.0%	27.9%	92.1%	20.0%	47.0%
	4	80%	69.7%	37.5%	93.9%	20%	30.3%
	10	60.0%	95.5%	75.0%	91.3%	40.0%	4.6%

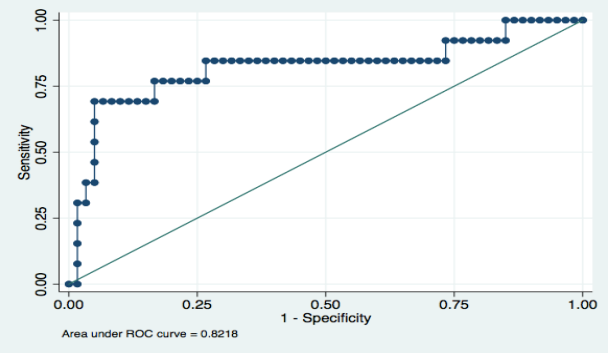

Fig.1 : ANG-2/ANG-1 AUC ROC Curve.

CONCLUSION:

ANG2/ANG-1 ratio showed better diagnostic performance than 2% parasitaemia, and better sensitivity compared with 10% parasitaemia. Therefore, ANG2/ANG1 could be a useful tool to predict severity in imported P.falciparum malaria

Balerdi-Sarasola L[1] Parolo C[1], Cruz A[1], Subirà C[1], Rodriguez-Valero N[1], Almuedo-Riera A[1], Letona L[1] Alvarez-Martínez MJ[2], Valls ME,[2] Aylagas C[2], Ferre R[2], Muñoz J[1], Camprubí D[1].

[1] Barcelona Institute for Global Health (ISGlobal), Hospital Clínic-Universitat de Barcelona, Barcelona, Spain.
[2] Microbiology Department, Hospital Clínic-Universitat de Barcelona, Barcelona, Spain