



# Title



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## Affiliations

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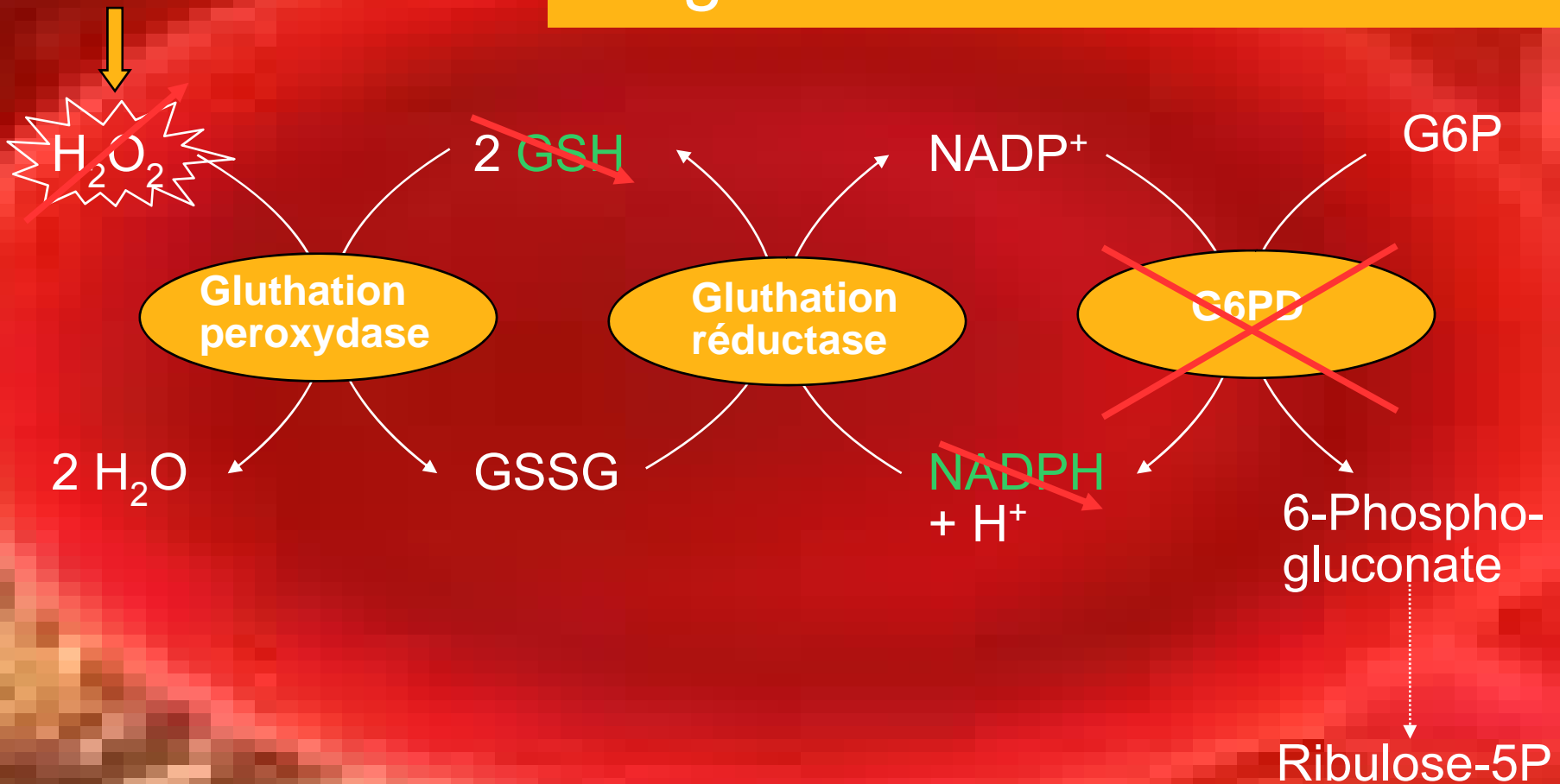
‡ Antwerp University

& Consortium with multiple partners

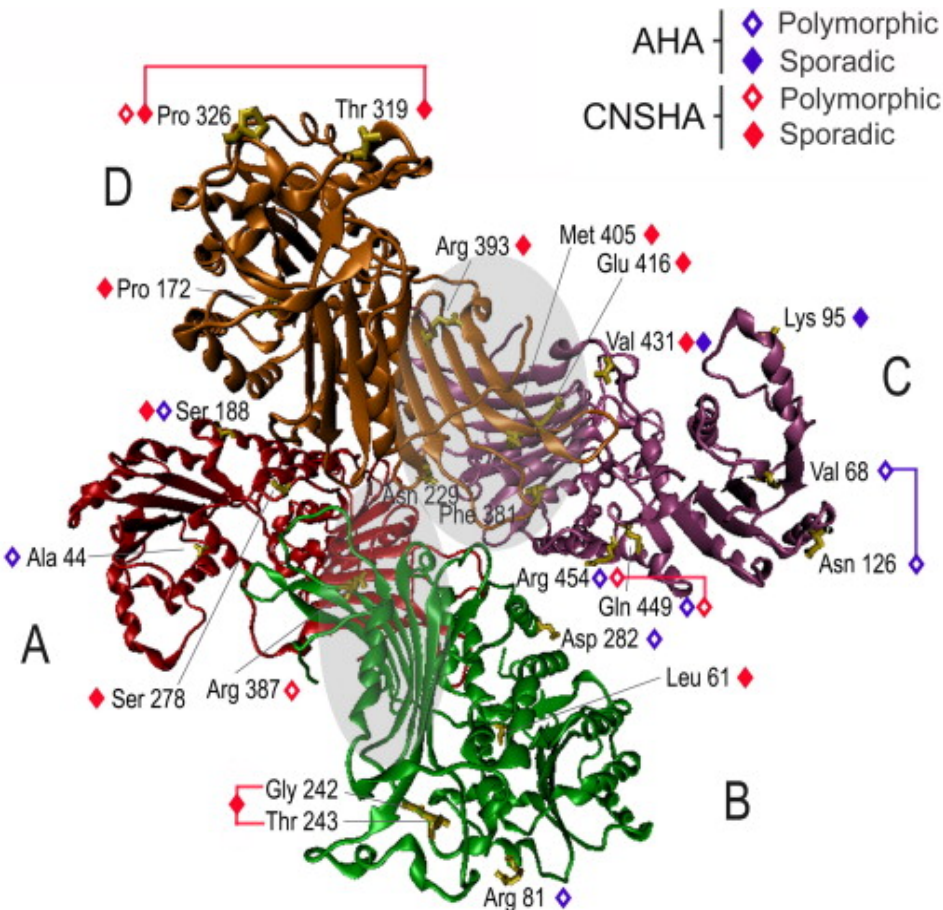
# Role of G6PD

Oxidative stress

Drugs / infections / fava toxins



# G6PD



- More as 400 variants
- 5 classes: 0-150% activity
- > 400 M people affected
- SS Africa
  - 3 genotypes: A- < A < B
  - activity: 12% 85% 100%
  - 5-30% G6PD deficiencies
  - 90% type A-



# Consequences of oxidative stress



- Haemoglobin Denaturation
- Heinz Bodies
- Alteration of membrane function
- cellular Lyses



# Objectives



Assess **haemolytic risk**  
related to **G6PD\* deficiency** after  
**Chlorproguanil-Dapsone / Artesunate (CD+A)**  
intake in African children with uncomplicated malaria.

\*Glucose-6-phosphate dehydrogenase



# Methods (1)



- Children from 1 to 4 years old
- Uncomplicated *P. falciparum* mono-infection malaria.
- Sites: Manhiça (Mozambique), Mbarara, Jinja, Tororo (Uganda)
- Treatment: CD+A, AL, DHAPQ or AQ+AS\*
- Haemoglobin  $\geq 7\text{g/dl}$

\*AL:Artemether+Lumefantrine;DHAPQ:Dihydroartemisinin+Piperaquine;  
AQ+AS:Amodiaquine+Artesunate;

# Methods (2)

- Endpoint:

HB drop within three days after treatment

- Matched Case Control study

↓Hb  $\geq$  2g/dl

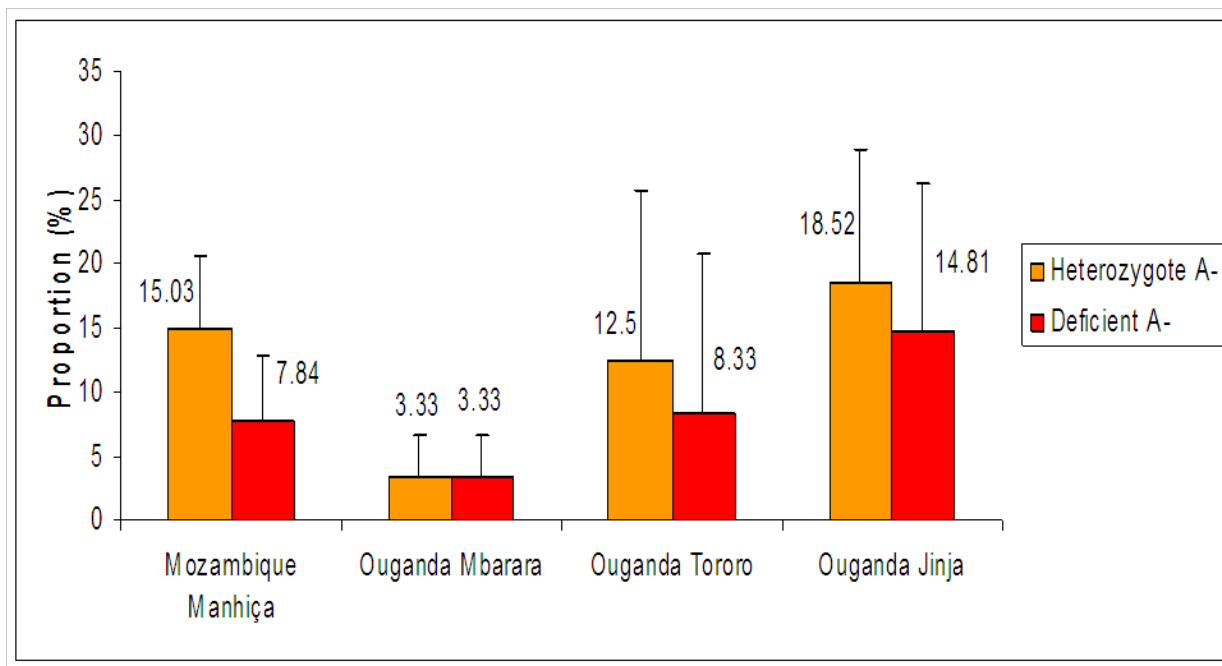
1 Case

↓Hb < 2g/dl

2 Matched Controls

- Matching: study site, gender, age & haemoglobin Day 0
- Conditional logistic regression model

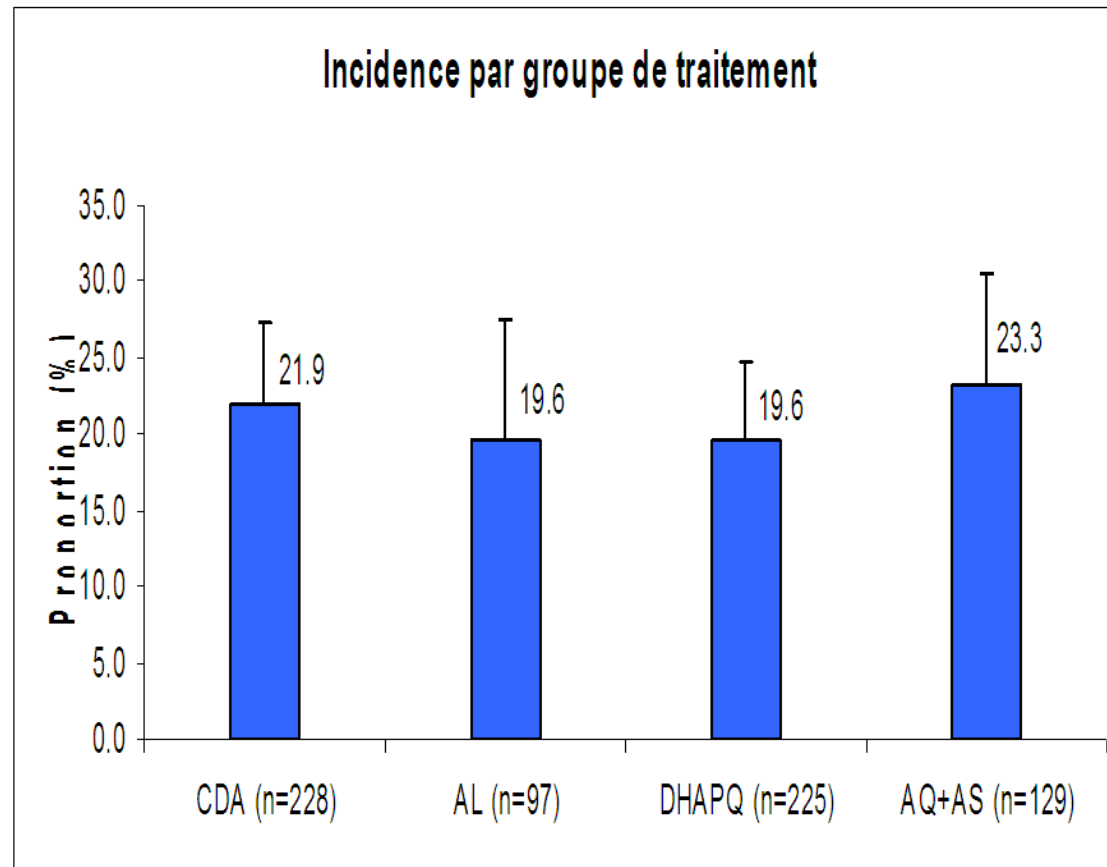
# G6PD status per site



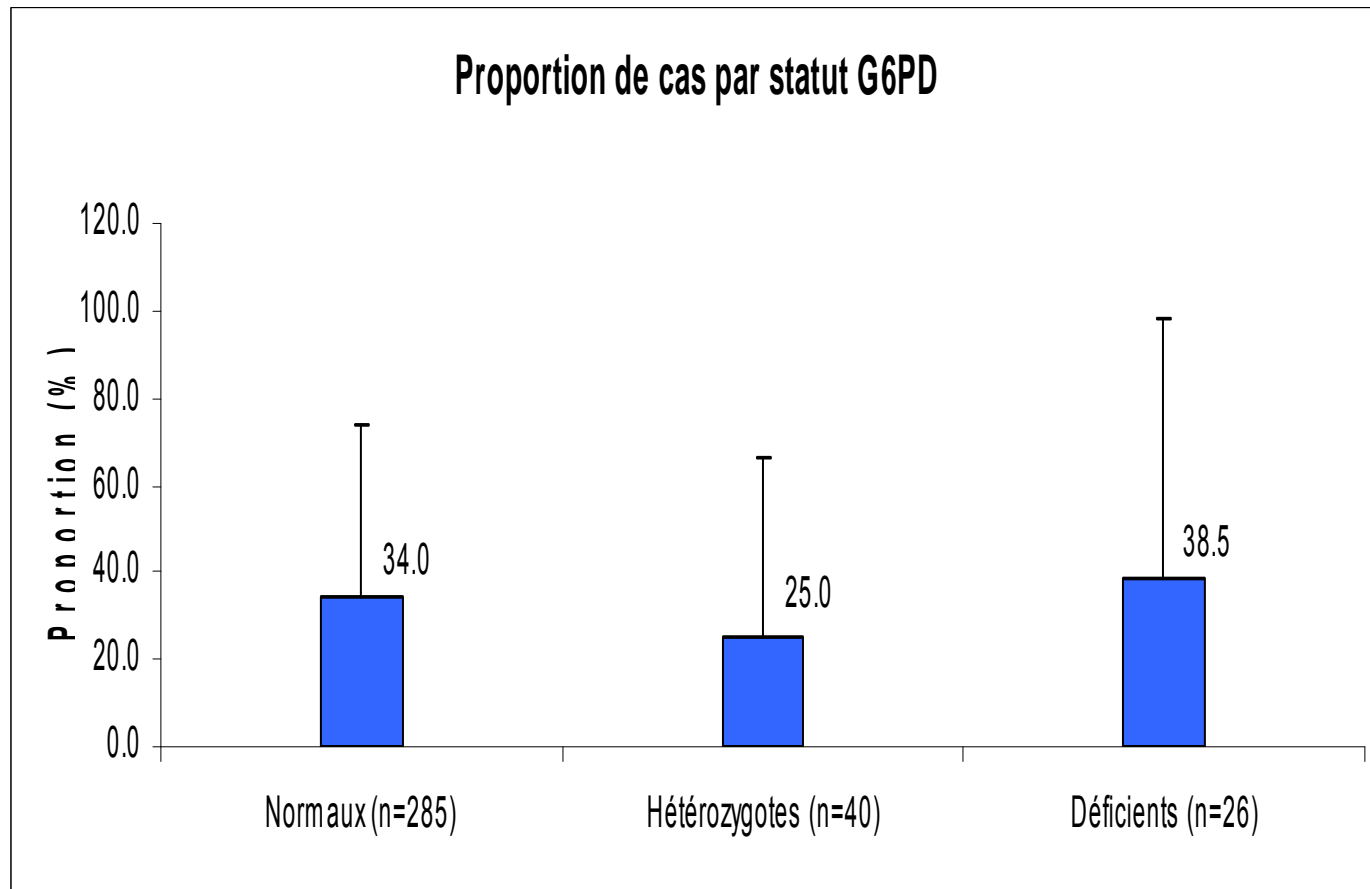
↓ Hb  $\geq$  2g/dl  
Cases  
n = 117

↓ Hb < 2g/dl  
Controls  
n = 234

# Post-treatment haemolysis' per treatment group



# Post-treatment haemolysis' per G6PD status





# Risk factors for Post-treatment haemolysis'

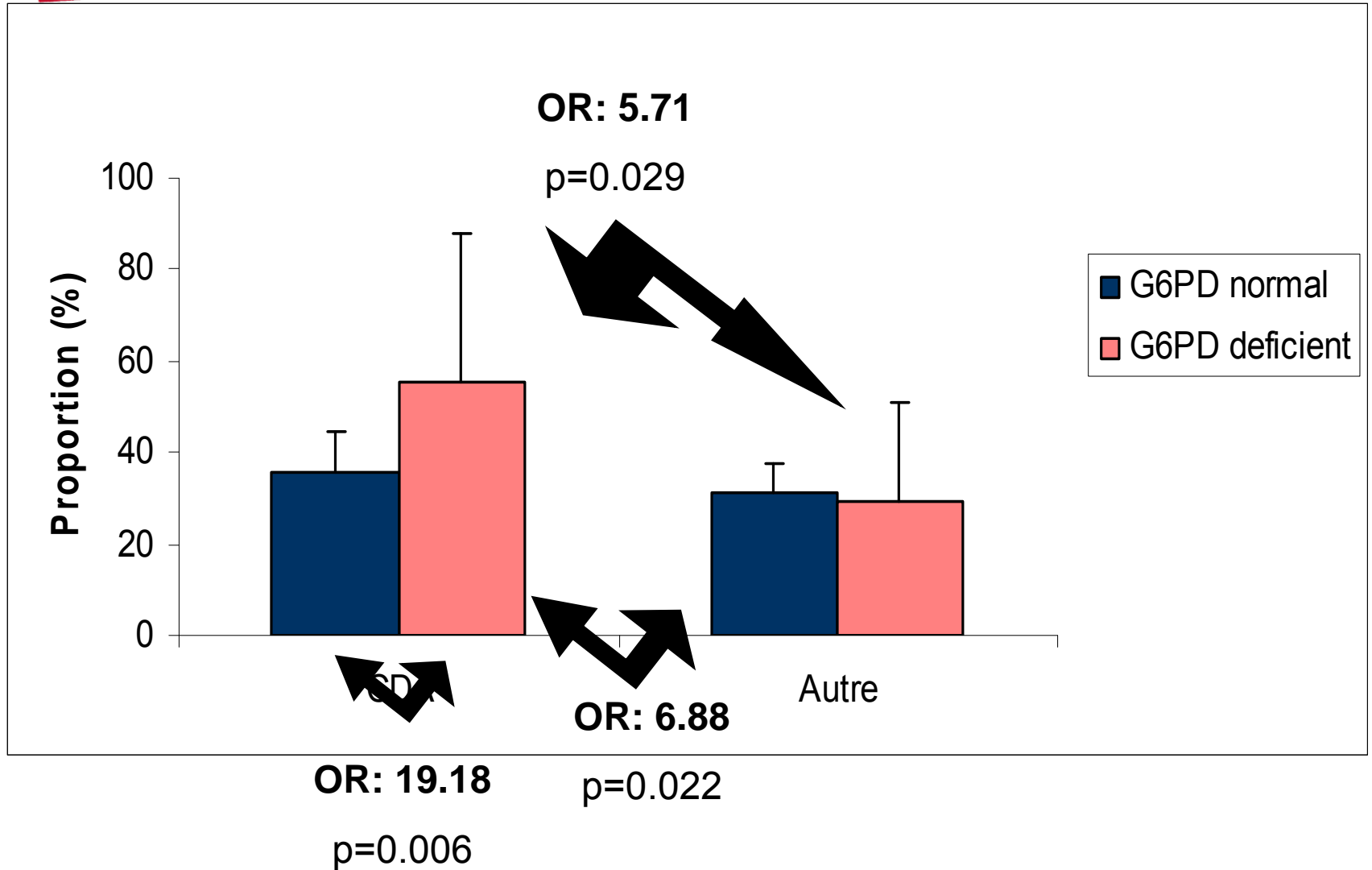


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<b>Risk Factors</b>	<b>OR</b>	<b>CL (95%)</b>	<b>p-value</b>
G6PD deficiency (1/0)	0.36	[0.06;2.02]	0.25
Mild anaemia (1/0)	0.02	<0.01;0.14]	0.000
Parasite density (1/0)	1.43	[0.85;2.40]	0.18
CDA (1/0)	1.20	[0.70;2.06]	0.50
CDA*G6PD deficiency	15.93	[1.56;163.04]	0.020



# Proportion of cases per treatment & G6PD status





# Discussion & Conclusions



- Use of CDA in uncomplicated malaria treatment could be a risk for G6PD deficient patients.

# Future perspectives

- Future of CD+A? (withdrawn)
- G6PD deficiency diagnosis?

