Erythropoietin treatment for cerebral malaria in children

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Objectives

- To test the hypothesis that:
- EPO could improve the survival during cerebral malaria by protecting neuronal cells from apoptotic death

Methods (1)

Randomised trial of Erythropoietin to prevent death from cerebral impairment during severe malaria

- **Study site:** Bamako, Mali
  Malaria Research and Training Center (O. Doumbo)
  Gabriel Touré hospital (Severe malaria ward)

- **Type of study:** phase III
  1 : Proof of concept
  2 : Randomized double blind clinical trial

- **Primary end point:** patients survival on day 5

Methods (2)

- **280 patients, Informed consent**
- **Inclusion criteria**
  - Children (280): 6 months to 14 years
  - *Plasmodium falciparum*
  - Coma : Blantyre <3
- **Exclusion criteria**
  - Severe anemia (<5g/dl)
  - Co-infection
- **Management of the study**
  - Ethical clearance
  - External monitor
  - International data monitoring committee

Results

- Primary end point: patients survival on day 5
- Inclusion started october 2006
- Main transmission season between june-september
- No serious adverse effect observed
- Proof of concept not yet available

Conclusions Perspectives

- **Neuronal protection concept (apoptosis inhibition)**

- **Cerebral malaria : new indication for EPO ?**
  - Tolerance of EPO
  - Role of anemia
  - Short treatment

- **EPO in low income countries (endemic areas)**
  - Cost
  - Cold chain

- **Cerebral malaria : engineered EPO, EPO α / EPO β ?**