Could Estradiol be used as a biomarker of infection in *Schistosoma haematobium* infected patients?

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**AIM**

To investigate the role of estradiol (E2) as a biomarker of infection in *S. haematobium* patients.

**BACKGROUND**

- Schistosomiasis haematobia is a known risk factor for cancer leading to squamous cell carcinoma of the urinary bladder (SCC).
- Schistosome eggs produce catechol-estrogens (Fig. 1). These estrogenic molecules are metabolized to active quinones that cause alterations in DNA (leading in other contexts to breast or thyroid cancer).
- Our group has shown that schistosome egg associated catechol estrogens induce tumor-like phenotypes in urothelial cells, originated from parasite estrogen-host cell chromosomal DNA adducts and mutations.
- Also we have demonstrated that these molecules are detected as Estradiol (Fig. 2) in sera of infected patients.

**METHODOLOGICAL STRATEGY**

1. Estradiol was tested by Electrochemoluminescence (ECLIA) in the urine of a cohort of infected patients from Guinea Bissau. We used not infected individuals from the same endemic area as controls.

**RESULTS**

We found a significant decrease in the levels of Estradiol in the urines of infected females and a significant increase in the levels of Estradiol in the urines of infected males in comparison to not infected persons.

**CONCLUSIONS**

- E2 can be used as a biomarker of infection with *S. haematobium*.
- Schistosome eggs associated catechol estrogens are detected by Mass Spectrometry. This method is very expensive and very time consuming specially when considering schistosomiasis a disease affecting the poorest people living in the poorest countries of the world.
- We now propose the use of a test very feasible and very low cost used in every clinical pathology laboratories: Urine Estradiol