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Effects of Freshwater Environmental Changes on Spread of *Schistosoma haematobium* in Guinea Bissau: a Retrospective Analysis.

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Schistosoma haematobium (blood fluke) is a digenetic trematode, which, as all digenetic trematode, has a complex life cycle including one parasite stage in a mollusk (freshwater snail – intermediate host) and one in a vertebrate – definitive host (1). In the vertebrate host the parasite reaches sexual maturity and releases eggs, which are expelled through urine; each egg develops into a miracidium larva, the first free-living stage of the development, which infects the intermediate host. In this, the miracidium undergoes metamorphosis to become a cercaria stage. The cercaria leaves the snail and actively searches, thanks to chemical and physical signals (2) the vertebrate definitive host, being the usual portal of entry the skin. After penetration, the cercariae are known as schistosomulae. These migrate and develop into mature adult schistosome worms, in and around the vesical plexus, and occasionally in the rectal region, the mesenteric portal system and ectopic sites (3).

In (4) we have a good article, of general character, on digenetic trematode as parasites, the diversity of trematodes that infect humans, and the economic impact of digenetic flukes.

Considering the dependence of blood flukes on freshwater our objective is to show the effects of freshwater environmental changes on the spread of *Schistosoma haematobium* in Guinea Bissau.

Freshwater without flow or with little flow is the favorable habitat for free life stages (miracidium and cercaria) of *S. haematobium*, as well as, of their snail (Gastropoda) intermediate hosts.

Keywords:
Schistosoma haematobium; schistosomiasis; Guinea Bissau; Africa; freshwater environmental changes.

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Thus, in areas where schistosomiasis caused by *S. haematobium* is endemic, a change of water flow to without flow or little flow constitutes a potential risk of appearance of new foci of transmission of schistosomiasis.

This type of situation of decrease of flow in freshwater collections has occurred in several zones along the Geba river in Guinea Bissau, and this was a consequence of the construction of a dam in Senegal. The human population used some of these zones for, principally, domestic activities, swimming and fishing. Subsequently, the contamination of the freshwater with human urine containing eggs of *S. haematobium* together with the establishment of freshwater intermediate hosts, introduced principally by aquatic birds when transported in mud on their feet, has originated, in some of those zones in new, foci of transmission of the parasite. The region of Gabu is an example where this has occurred. In a study on human schistosomiasis carried out there, we found a prevalence of 26.2% (341) in a total of 1302 girls and boys examined (5). All positive cases were treated with 40 mg Praziquantel/Kg (5).

Here, based in our studies in Guinea Bissau, we want: (i) to reinforce the call for attention on environmental changes which may result in a spread of *S. haematobium*/schistosomiasis ; and (ii) to remember that this may soon constitute a public health problem. So, in countries where the disease is present, to prevent these situations, the official health services may establish programs of control of the disease, where positive cases are treated, and basic sanitation and clean drinking water are provided. On the other hand, actions in education for health, principally in school may be promoted. The children are very receptive to new knowledge, and they constitute a link to adult communities. Consequently, their involvement in the work on schistosomiasis provides a good help for a future decrease in the spread and prevalence of *S. haematobium*.

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