Antiparasitic activity of the antiarrhythmic drug amiodarone against *Schistosoma mansoni*: an *in vitro* and *in vivo* approach

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Schistosomes are long lived, intravascular parasitic worms that infect >200 million people globally. Since praziquantel is the only drug available to treat schistosomiasis, there is an urgent need to expedite the drug discovery process. Strategies that have been successfully applied to expedite the drug discovery process against parasitic diseases include drug repurposing. In a recent study, we employed a drug repurposing strategy to screen a library of commercially available cardiovascular drugs to determine their activity against *Schistosoma mansoni*. From these screenings, we identified that amiodarone, a potassium channel blocker antiarrhythmic, had *in vitro* antischistosomal activity. This study aimed to investigate the potential of amiodarone as an antischistosomal agent orally active in schistosomiasis animal model harboring either adult (patent infection) or juvenile (prepatent infection) stages of *S. mansoni*. Initially, *in vitro* studies were conducted to determine the effective antiparasitic concentration. Amiodarone had antiparasitic efficacy at low concentration (< 10 μM) and scanning electron microscopy revealed that amiodarone-mediated worm killing was associated with tegumental damage. *In vivo*, amiodarone at single dose of 400 mg/kg or 100 mg/kg daily for five consecutive days resulted in a low efficacy in terms of reduction of worm and egg burden in an animal with patent infection. In contrast, amiodarone caused a significant reduction in worm and egg burden in prepatent infection (>50%). In conclusion, treatment with amiodarone is more effective in early infection than praziquantel, demonstrating the potential role of this antiarrhythmic drug as an anthelmintic agent. In addition, these results give support for the antiparasitic potential amiodarone as lead compound for novel antischistosomal agent.