LETTERS TO THE EDITOR

Dear Sir:

The article Prolongation of the QTc interval in African children treated for falciparum malaria, published May of 1997 by Von Seidlein and others, describes the electrocardiographic changes during the recovery from malaria. These have been interpreted as representing an enhanced risk of developing cardiotoxic effects with some antimalarial drugs.

We would like to point out a major confounding factor which is not adequately addressed in this article or indeed by most other work in this field. Bazett’s formula \(\text{QTc} = \frac{\text{QT}}{\sqrt{RR}}\) provides inadequate correction of the QT interval, particularly at high and low heart rates. Furthermore, the actual relationship between the QT and RR interval may vary upon the population being studied.

In a recent study of the electrocardiographic changes in 230 patients treated for acute uncomplicated falciparum malaria on the Thai-Burmese border, serial EKGs were recorded on admission, day 3, day 7 and day 28. In this population, the Bazett’s formula “corrected” QTc interval remained significantly correlated with the RR \((r = -0.27, P<0.001)\). At high heart rates (>120 bpm), Bazett’s formula under corrected and in bradycardiac (<60 bpm) patients, it over corrected.

Previous studies have shown that during the recovery phase of falciparum malaria there is often a period of rebound bradycardia on days three and seven. Taken in conjunction with the bias inherent in Bazett’s rate correction, it is likely that the small but significant changes in the QTc interval (mean difference of 11 msec, \(P<0.01\)) recorded in Gambian children by Von Seidlein and others were in fact manifestations of a decline in heart rate (RR interval) with recovery from malaria.

We have modeled the QT/RR relationship using a method described previously, and have found that in the Karen population, the appropriate rate correction formula is QT/ (RR**0.4). When this parameter was used to investigate changes at day three and seven in the QT interval (independent of heart rate), none were found. Furthermore, the association between prolongation of the QTc on admission and the presenting peripheral parasitemia (also demonstrated by Von Seidlein and others), was no longer significant when changes in heart rate were accounted for. Appropriate rate correction of the QT interval is necessary when there are consistent changes in heart rate and small changes in the intervals.

REFERENCE


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Dear Sir:

Drs. Price, Nosten and White suggest that Bazett’s formula does not provide an adequate correction of the QT interval, particularly at high and low heart rates. On these grounds they criticize the results of our study on QT intervals in children with malaria. In light of this, we have modeled the QT/RR relationship using the method previously described and have found the appropriate correction formula for our population to be QT/(RR**0.5415), which is very similar to Bazett’s formula. The correlation between QTc (using the new correction) and heart rate was only 2 \(0.015 (P>0.8)\). Thus, our conclusions have remained unchanged. Indeed, because the heart rates on days four and eight are similar, the difference in the prolongation of the QTc interval over this period is likely to remain unchanged irrespective of the correction formula.

REFERENCES


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Dear Sir:

Outbreak of acute schistosomiasis among Israeli rafters on the Omo River in Ethiopia

Acute schistosomiasis, or Katayama fever, occurs following initial exposure and infection with *Schistosoma mansoni* and *S. japonicum*. This illness is seldom recognized in endemic populations and therefore is primarily noted in visitors to endemic areas.

As an imported disease, schistosomiasis is typically a condition of the uninformed and inexperienced but more adventurous traveler who goes on expeditions. Schistosomiasis in travelers often remains unrecognized because doctors are unfamiliar with the clinical presentation and diagnosis of this important disease. Consequently, some of these patients develop the chronic phase of schistosomiasis.

In Israel, we have diagnosed nine cases of acute schistosomiasis from two rafting expeditions (consisting of 24 people) on the Omo River in Ethiopia. The rafters came back to Israel in the middle of October 1997. Five of these rafters developed typical signs and symptoms of Katayama fever (chills, fever, nonproductive cough, headache, myalgia, and abdominal pain) four to six weeks after departing Ethiopia. The other four were either asymptomatic or had minimal symptoms with marked eosinophilia (range 15–32%). The diagnosis of schistosomiasis in one symptomatic patient was confirmed by fecal testing for *S. mansoni* eggs. Six other rafters were diagnosed by FAST-ELISA assay for *S. mansoni* at the Centers for Disease Control and Prevention (CDC) in Atlanta, Georgia. No diagnostic procedure was performed on the two remaining rafters. All the patients were treated successfully with praziquantel.

None of the rafters from either expedition had heard about schistosomiasis and were not informed about the dangers of water-related diseases.

Currently, four reports have been published in American literature describing cases of acute schistosomiasis among travelers to the Omo National Park in Ethiopia1–3 (Cetron and others, unpublished data). In this era of mass tourism, tour operators bear a special duty and responsibility to inform their clients about hazardous water-related diseases such as schistosomiasis.

**References**


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