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Which QTc correction formulae (Bazett, Framingham, or Fridericia) to use for Hydroxychloroquine induced QTc prolongation?

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Letter to the editor

Which QTc correction formulae (Bazett, Framingham, or Fridericia) to use for Hydroxychloroquine induced QTc prolongation?

World Health Organisation has declared COVID-19 as pandemic on March 11, 2020. Hydroxychloroquine has been recommended for treatment as well as prophylaxis for health care workers by Indian Council of Medical research for COVID -19 [1].

Hydroxychloroquine is an analogue of chloroquine. It is more potent and have fewer drug interactions when compared with chloroquine. The intrinsic property of hydroxychloroquine on the sinoatrial node cannot be overlooked. It slows the rate of sinus node by inhibiting L-type calcium channels (I_{CaL}), rapid delayed rectifier potassium current (I_{Kr}), and funny channels (I_f) [2]. Although it is a safe drug, one of the serious adverse effects is QT prolongation, culminating in Torsade des Pointes, leading to sudden cardiac death.

The recent guidelines released by Indian Heart Rhythm Society on hydroxychloroquine recommended the use of Bazett formula for calculation of QTc prolongation [3]. As we know, there are multiple formulae for calculating QTc - Bazett, Fridericia, Framingham, and Hodges. Framingham linear regression equation is the appropriate for calculating QTc for epidemiological purposes, as it is derived from large population sample [4]. Unfortunately, there are no large studies to show the benefit of using one formulae over the other in predicting torsades de pointes. The study by Vanderberk and coworkers in drug-induced QTc prolongation advocated using Fridericia or Framingham formula, instead of Bazett formula, which may undercorrects QTc prolongation at low heart rate and overcorrects at high heart rate [5]. Due to the bradycardic

effect of hydroxychloroquine, Bazett formula should not be used for calculating QTc in the COVID-19 pandemic. Further large studies are required to look for the effectiveness of various QTc correction formulae in this COVID-19 pandemic.

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