

The importance of correct QTc measurement in elderly patients treated with QT interval prolonging drugs

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To the Editor,

We read with interest the recently published article by Kan *et al.*¹ In this review, the authors address the identification and management of drug-intoxicated patients who may be at risk for prolongation of the QT interval corrected for heart rate (QTc) and possible torsades de pointes (TdP). They recommend a stepwise approach that includes identifying which QTc interval-prolonging drugs are involved and if additional risk factors are present, correct determination of the QTc interval using the Hodges or Frederica formula, and when indicated initiating monitoring and treatment.

While this review focuses on the intoxicated patient, this is also very important in the hospitalised elderly patient. Elderly patients may be more vulnerable for drug-induced QTc prolongation and consequently at risk for TdP since the QTc interval is known to increase with age.^{2,3} Additionally, they often have other risk factors for QTc interval prolongation present such as myocardial damage, polypharmacy (e.g. use of class Ia or III antiarrhythmic agents, and specific antidepressants), or electrolyte disturbances. Several safety concerns have been raised for use of QTc interval-prolonging drugs such as fluoroquinolones and antipsychotics in elderly patients.^{2,4} The antipsychotic haloperidol, currently the treatment of choice for most delirium, may induce QTc prolongation.⁵ With delirium prevalence rates of more than 30% in older general internal medicine patients,⁶ treatment initiation with haloperidol or other antipsychotics known to prolong the QTc interval in elderly patients is daily practice for many physicians. To date, there is no accepted standard for risk assessment and monitoring of elderly patients subjected to drugs that may potentiate QTc prolongation and TdP.

We are currently conducting a multicentre double-blind placebo-controlled randomised clinical trial (The HARPOON study; NCT01530308) to study the effects of

haloperidol prophylaxis (1 mg twice daily for a maximum of seven days) on delirium in hospitalised older patients (≥ 70 years of age). A 12-lead ECG will be performed at different protocolised time points during prophylactic treatment. Two observers will manually determine the QTc interval independently of each other according to method 1 (as described in figure 1 in the article by Kan *et al.*).¹ Also, automated versus manual QTc interval measurement will be compared, given that previous studies have shown that agreement between these methods is generally low.⁷

We would hereby like to emphasise the importance of accurate QTc measurement by valid methods in the large number of hospitalised elderly patients subjected to drugs with the potential to cause cardiac complications.

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