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MEDICAL TOXICOLOGIST PRACTICE REGARDING DRUG-INDUCED QT / QTC PROLONGATION IN OVERDOSE PATIENTS: A SURVEY IN THE ASIA PACIFIC REGION

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Background: QT interval prolongation (QTIP) secondary to overdose is a common occurrence that can be complicated by the development of Torsades de Pointes (TdP). The management of QTIP varies among toxicologists because of the lack of standard guidelines in Medical Toxicology literature.
Objective: To describe the knowledge and practices of toxicologists who practice in the Asia Pacific region regarding the management of QTIP and TdP.
Methods: The survey was developed using guidelines published by the American Heart Association (AHA) and the American College of Cardiology (ACC). It was approved by our Institutional Review Board and the Asia Pacific Association of Medical Toxicology (APAMT). The principal investigator (PI) electronically mailed it to toxicologists in the region who were identified by the APAMT and PI in 2012. The survey consists of 20 questions and a standard scenario.
Results: The survey was disseminated to 74 toxicologists in 15 countries. Three physicians were excluded. We eventually included 71 toxicologists, 37 of whom have taken the survey (response rate 52.1%). Thirty toxicologists (81.1%) from Hong Kong, India, Iran, Philippines, Singapore, Taiwan, Thailand and Vietnam used corrected QT intervals (QTc) to determine the risk of TdP. All toxicologists (6/37) from Australia and New Zealand utilised QT nomogram instead. Only participants using QTc could proceed with the rest of the survey (question 5-20). Seventy- five percent of toxicologists (21/28) who used QTc used Bazett's formula to correct QT intervals (QTI), while 25% would not calculate QTI but read it from ECG printouts or use numbers reported to them. The QTc interval was considered prolonged if it was greater than 440 milliseconds (ms) in men (32.1%) or 460 ms in women (28.6%). Eighty percent (22/28) believed the incidence of TdP was less than 1%. Using a scenario of a male patient with overdose and a QTc of 560 ms, heart rate (HR) of 90 beats/minutes (bpm), 66.7% (18/27) did not recommend IV MgSO4. Seventy percent (18/26) thought IV MgSO4 can shorten the QTc interval, but only half thought it could prevent TdP. Cardiac pacing is recommended by the AHA and ACC to prevent repeated episodes of TdP, but 19.2% would pace when QTc>500 ms with HR<60 bpm without any TdP, and 23.1% would not pace at all even if patients developed multiple episodes of TdP.
Conclusions: The knowledge and management practice of QTIP and TdP varies widely among responding toxicologists who practice in the Asia Pacific region. Evidence -based guidelines need to be developed and disseminated in the region.