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85. Do abnormal electrocardiographic intervals predict death in poisoned patients older than 65 years?

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Background: Abnormalities in electrocardiographic intervals pre- dict all-cause mortality in poisoned patients. The evidence base for these findings did not include older patients. The prevalence of elderly poisoned patients has increased from 2.3 to 9.6% in the last 40 years. Elderly patients are more likely to have abnormal electro- cardiograms (ECGs) for reasons not related to poisoning and to take medications that can alter the presentation of toxicity from a xenobiotic. Therefore, it is imperative to determine the predictive value of the ECG intervals in patients older than 65 years. Our objective in this proposal is to determine the predictive value of a QRS wider than 0.12s and a corrected QT longer than 0.5s in all-cause mortality in poisoned patients older than 65 years.

Methods: We conducted a secondary analysis of data from ToxIC, a multisite registry of poisoned patients. We calculated the odds ratio between age over 65 years and all-cause mortality during that hospitalization. We included all cases from 2000 to January 20, 2024. The year 2000 is the oldest for which electro- cardiographic data were recorded as a core measurement. The study received an exemption from the IRB.

Results: We identified 64,308 patients, of whom 4,424 were older than 65 years. 60, 967 (3,908) had their clinical outcome, electro- cardiographic intervals, age, and gender identity recorded. For patients older than 65 years, the median age (interquartile range) was 74 (69–85) years. They were 72% male. None reported iden- tifying as nonbinary. In those over 65 years of age, the odds ratio for mortality if the QRS was greater than 0.12s on any EKG was 4.12 (95% CI 2.5–7.0). The odds ratio for mortality if the corrected QT was greater than 0.5s on any EKG was 1.93 (95% CI: 1.16– 3.20). The fragility indices for each odds ratio were each greater than 20. In the general population, the odds ratios were 6.05 (4.89–7.49) and 2.93 (2.42–3.54), respectively.

Conclusion: Abnormal EKG intervals may be a less useful pre- dictor of all-cause mortality in poisoned patients older than 65 years than in the general population. In patients older than 65 years poisoned by at least one agent, any EKG with a QRS greater than 0.120 s was associated with an approximately 4-fold increased probability of death during that hospitalization and a corrected QT longer than 0.5 s with an approximately 2-fold increased likelihood. In the general population, there is a sixfold and threefold increase, respectively. This lower predictive value in those older than 65 years may reflect the increasing prevalence of ischemic heart dis- ease and bundle branch blocks with age and the interference of other medications. It could reflect a bias in registry data. For example, poisoned elderly patients with EKG changes may be more likely to be cared for by cardiology without toxicology involvement. Our findings

motivate future work to determine the sources of variation in the predictive value of EKG intervals with respect to age, ingestant, and underlying bundle branch block.