Statistics Plan: The Effect of Carbetocin Dose on Dispersion of Myocardial Repolarization in Healthy Parturients Scheduled for Elective Cesarean Delivery Under Spinal Anesthesia

NCT03716076

September 26, 2019

Statistical Analysis Plan

Mixed-effects linear regression, with the participant as a random effect to control for repeated measures, will be used to compare the changes in Tp-e and QTc over time. We will include the interaction between group and time (baseline, 5 minutes after spinal, 5 minutes after carbetocin, and 10 minutes after carbetocin) to explore if changes in Tp-e or QTc over time differed between the groups. To investigate if there are significant differences over time in Tp-e or QTc within groups, mixed-effects linear regression will be used within each group separately, comparing all time points to the baseline values using post hoc Tukey's tests. Tp-e and QTc will be compared between the groups at 5 minutes after carbetocin administration using analysis of covariance, with baseline Tp-e and QTc as covariates. All analyses are to be performed in R (version 3.5.3; R Foundation for Statistical Computing, Vienna, Austria).

The sample size was estimated based on a previously published study by Guillon et al, showing the mean change in Tp-e at 5 minutes following administration of oxytocin for pregnant patients scheduled for elective CD under spinal anesthesia was 12 milliseconds with a standard deviation (SD) of 7. Using a type I error of 0.05 and a type II error of 0.99, and assuming a 2-sample t test, 14 patients per group are required. To adjust for 2 separate primary outcomes for 2 separate doses, an α correction factor of 2 will be applied (ie, α = .025), and 16 patients are required per group. To account for 20% attrition, a total of 50 parturients will be recruited for a total planned sample size of 20 per group. Sample size calculations will be conducted using the "pwr" package in R.

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