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Resident Heart Rate Variability During Cataract Surgery

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Resident Heart Rate Variability During Cataract Surgery

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Purpose: To evaluate ophthalmology resident anxiousness and cardiovascular response by tracking resident heart rate (HR) when performing cataract surgery during their last year of residency.

Methods: A prospective analysis of 31 cataract cases, completed by three residents (two females and one male), at the Kresge Eye Institute in August and September 2020 was performed. Inclusion criteria for cases included all cataract cases performed by PGY-4 residents at the Kresge Eye Institute who downloaded the Heart Graph app supported by iOS. Residents with android mobile devices were excluded from the study. Informed consent was obtained from all residents who utilized the MOOFIT tracker and no incentives or penalties were utilized by the department during this study.

Results: Residents were divided by gender. Total HR mean(SD) was significantly elevated for female residents with a HR of 107.4(13.0) for females and 81.4(11.5) for males ($P < 0.0001$). Further analysis also showed that female residents' heart rate was significantly higher at the beginning and end of performing cataract surgery with $P < 0.0003$ and $P < 0.0002$, respectively. Female residents also had significantly higher minimum and maximum heart rates achieved than males ($P < 0.0005$). Interestingly, there was no statistical difference in time of total duration (min) of individual cataract operations performed by female and male residents ($P > 0.05$).

Conclusion: Our study shows significant difference in peak and sustained HR response between female and male ophthalmology residents while performing cataract surgery. The cumulative effect of high HR on the overall health of residents, training in the surgical specialty of ophthalmology, needs further investigation.