Variability of Anesthesia-Controlled Time in Non-Operating Room Anesthesia

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INTRODUCTION

Anesthesia cases have migrated from the OR to ambulatory sites over the past 3 decades. There are few studies on the relevance of OR management metrics to NORA cases. Physical distance may represent a fixed and variable component of anesthesia-controlled time for NORA cases. It is fixed because of the distance providers must travel in bringing patients to the post-anesthesia care unit (PACU), and it is variable because there are multiple routes for patient transport. Here, we study the variability of anesthesia-controlled time in MRI sites and test the hypothesis that it is path-dependent.

METHODS

Using WiseOR® (Palo Alto, CA), we extracted the room in and out times for all pediatric sedation NORA cases from 2015. To calculate anesthesia-controlled time (ACT), we subtracted procedure times for MRI scans from total anesthesia time. We measured the paths most likely used for patient transfers with a measuring wheel. There are two routes from the MRI suite to PACU. The longer route (227.1m) involves 11 turns and 1 elevator ride up 2 floors; the shorter route (203.0m) involves 12 turns and 2 single-floor elevator rides. We performed a multiple regression analysis with anesthesia-controlled time (minutes) as the independent variable and route and case count as dependent variables.

RESULTS

Our analysis showed an R² value of 0.85, a standard error of 7.65 minutes. We classified the short route as 0 and the long route as 1. Our multiple regression equation was: ACT (minutes) = 41.60 minutes – (7.95*Route) + (4.49*Case Count). This data was not statistically significant (P>0.05). The predicted and actual anesthesia-controlled times are shown in Figure 1.

DISCUSSION

In this study, we show no correlation between anesthesia-controlled time and the physical distances between the MRI site and PACU. The lack of a difference is interesting. Anesthesiologists who take the longer route, potentially faster route, felt it has more straightaways allowing faster transit to recovery thus increasing patient safety. Those who take the shorter, but potentially slower route, also believe it is safer because it winds through the interventional radiology and cardiovascular suites where help would be available if needed.

Guidelines for the local, immediate NORA site exist in literature; however, there is poor guidance on the limitations of physical proximity to the main OR. Directors of NORA services should recognize there may be different solutions to optimize the tactical and operational processes. Future studies should elucidate the operational, safety and human factors involved with designing NORA sites.

“First we build the buildings, then the buildings shape us.”
- Sir Winston Churchill