



Enhanced Induction and Recovery of Total Intravenous General Anesthesia with Natural Airway (IVGANA) for Parturients Undergoing Transvaginal Cervical Cerclage

Tianyue Mi, PhD; Danran Zhou, BS, RN; Jie Zhou, MD, MS, MBA

Department of Anesthesiology, Perioperative and Pain Medicine, Brigham and Women's Hospital
Department of Anesthesiology & Perioperative Medicine, University of Massachusetts Chan School of Medicine



UMass Memorial Health

Background

Transvaginal Cervical cerclage is an important procedure to prevent or treat cervical incompetence or insufficiency. The procedure usually lasts no more than 30 minutes and is traditionally performed under spinal anesthesia. With the increased demand for enhanced recovery, the application of deep sedation or intravenous general anesthesia with natural airway (IVGANA) has emerged. The purpose of this study is to review the cervical cerclage cases performed under these different anesthesia methods.

Methods

The retrospective cohort study was based on electronic health records data of 1,300 women who underwent transvaginal cerclage placement at a multi-center tertiary healthcare system between June 3, 2015 and January 27, 2023. Anesthesia types were categorized into total intravenous (TIVA) general and neuraxial. Linear regressions were employed to examine if anesthesia type predicted the duration of anesthesia induction period (from anesthesia start time to procedure start time) and the anesthesia recovery period (from anesthesia end to patient discharge). Age at procedure, race and ethnicity were controlled in the models.

Results

Parturients' Characteristics

- ❖ Mean age of 33.1 (SD=5.1) at the time of the cerclage procedure.
- ❖ Participants were racially and ethnically diverse (38.0% non-Hispanic White, 27.7% non-Hispanic Black, 20.9% Hispanic, 8.8% Asian, and 4.6% other race).
- ❖ Majority of participating women received neuraxial anesthesia (n = 1089, 83.8%) rather than TIVA anesthesia (n = 127, 9.8%).

Anesthesia Induction Duration

- ❖ Compared to the induction duration of women who had neuraxial anesthesia (Mean=27.1 minutes, SD=10.3), women who had TIVA anesthesia (Mean=18.3 minutes, SD=8.0) experienced significantly shorter anesthesia induction duration ($\beta=-.27$, $p<.001$).

Recovery Duration

- ❖ Compared to women who had neuraxial anesthesia (Mean=298.6 minutes, SD=204.5), women who had TIVA anesthesia (Mean=162.1 minutes, SD=183.9) experienced significantly shorter recovery duration from anesthesia end to discharge ($\beta=-.21$, $p<.001$).

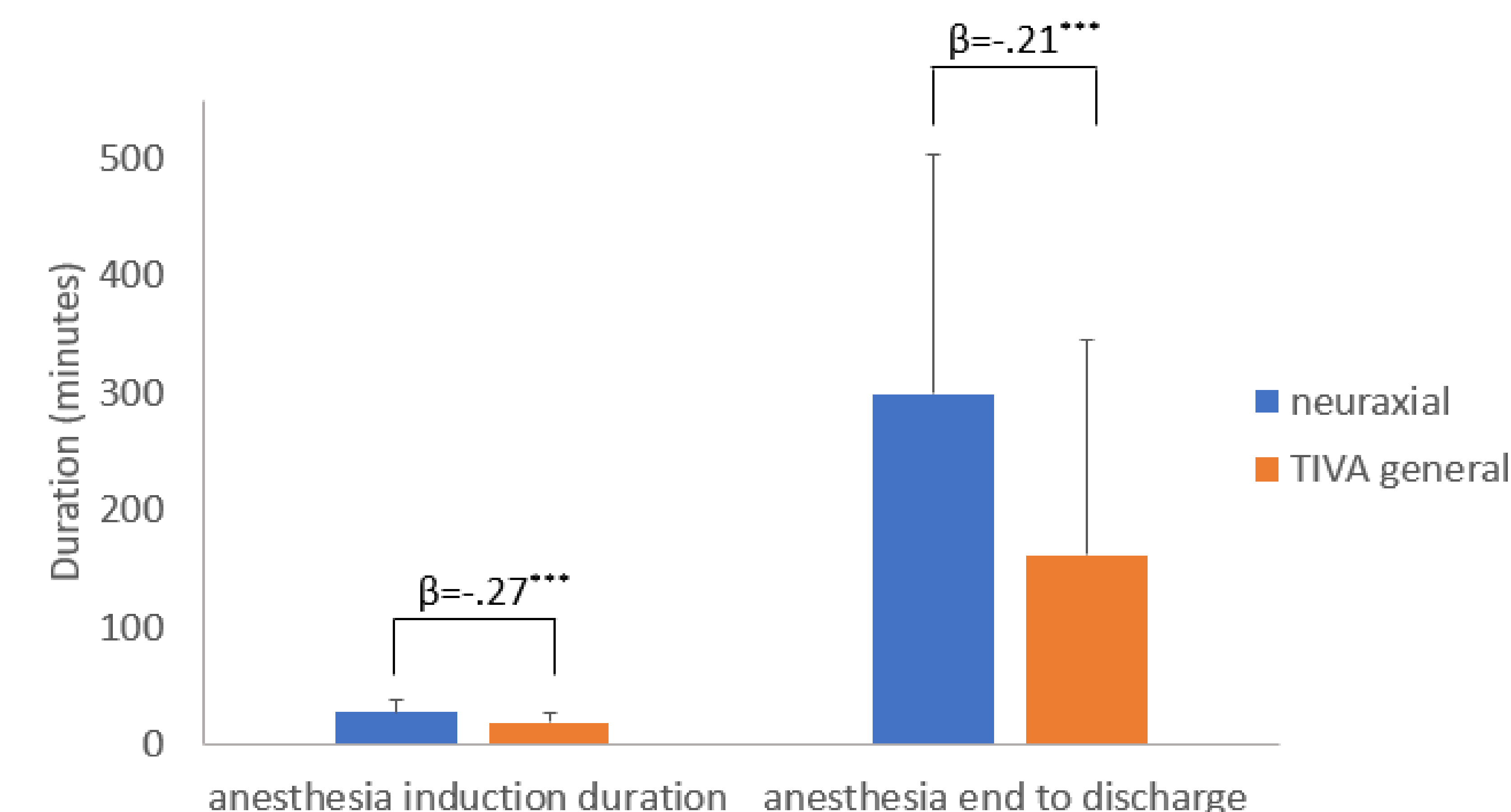


Figure 1. Anesthesia induction duration and recovery duration between different anesthesia types (Note: *** indicating $p<0.001$)

Discussion

Our results indicated that IVGA approach in transvaginal cervical cerclage could be advantageous due to significantly reduced induction time and recovery time. Therefore, parturients could benefit from quick return to home. This study implied that IVGA could be effective in performing cerclage operations with enhanced induction and recovery.

References

1. Bolla D, et al. Arch Gynecol Obstet 2017; 295(4):885-890.
2. Berghella V, et al. Am. J. Obstet. Gynecol 2013; 209(3):181-192.
3. Moore D, et al. Anesth Analg 1980; 59: 743-750.