Correspondence

In Reply:

We thank Drs. Gurunathan and Harrison et al. for their interest in our publication. To address Dr. Gurunathan’s comments, we would like to point out that in making our statements we did not purely adopt or quote the findings presented by Sliva et al.,1 but we critically reviewed and interpreted them in the context of our study. Although the total number of patients in the study by Sliva et al. was 332, only 267—as reported in our paper—had their procedure performed during the same hospitalization (n = 241 staggered [i.e., 4–7 days apart] and n = 26 sequential [i.e., during the same anesthetic]). Because our study focused only on patients whose procedures were performed during the same hospitalization, we correctly identified this subgroup of interest (n = 241 + 26 = 267).2

Importantly, major complications occurred in four patients in the staggered group, whereas none occurred in the sequential group. Although the numbers in the study may not be sufficient to show statistical significance, major adverse events in the perioperative period are of great clinical concern. This is the reason why mortality was chosen as the primary outcome in our analysis. The importance of mortality and major complications is appropriately made evident by Dr. Gurunathan’s comment, regarding their highest incidence in the staged bilateral knee arthroplasty patients, despite not reaching statistical significance as well. This issue gets to the heart of the problem when studying low-incidence outcomes, such as mortality, in studies with limited numbers because often authors conclude that the procedures can be considered safe based on underpowered results failing to show statistically significant differences between groups. With perioperative mortality being the primary outcome in our study, we tried to overcome the problem of small sample size by using the largest all-payer database available in the United States. Although our interpretation regarding the study of Sliva et al. may have not been in line with the authors’ conclusion, who based their statements of safety on the occurrence of overwhelmingly minor complications, we believe that our independent interpretation of their findings regarding mortality and major complications is correct. We do not dispute, however, that by being more precise in our presentation, we could have avoided this miscommunication.

The sentence should read: “…in a study including 267 patients who underwent bilateral knee arthroplasty during the same hospitalization, Sliva et al. found that bilateral procedures performed 4–7 days apart were associated with higher incidence of mortality and major morbidity when compared with simultaneously performed procedures. No statistical difference could be shown however, likely because of low numbers.”

Dr. Harrison et al. posed questions regarding the validity of the Nationwide Inpatient Sample and its ability to produce nationally representative data for total knee arthroplasty procedures. We would like to refer the interested reader to the publication “Introduction to the Nationwide Inpatient Sample” published by the Agency for Healthcare Research and Quality* for general background information on this database.

To answer their specific questions:

1. The total number of entries for hospitalizations for the years between 1998 and 2006 was 68,836,152. This means that of all hospitalizations, 0.97% were associated with primary knee replacement. One of the stated goals of the Nationwide Inpatient Sample is to provide data that allow for national estimates, which confirm confidence in this data source as shown by its wide use in the medical research field when seeking to provide nationally representative data. Further, the frequencies for a specific time frame published and derived from another nationally representative database—the Na-

References


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difficult intubation scenarios but is also being used increasingly not only frequently used as the first-attempt intubation device in its increasing popularity over recent years. So much so that it is videolaryngoscope (Verathon Medical, Bothell, WA) has led to The ease of obtaining a good view of glottis with GlideScope®. To the Editor: Is GlideScope® Intubate?

References


Is GlideScope® the Best Way to Intubate?

To the Editor:
The ease of obtaining a good view of glottis with GlideScope® videolaryngoscope (Verathon Medical, Bothell, WA) has led to its increasing popularity over recent years. So much so that it is not only frequently used as the first-attempt intubation device in difficult intubation scenarios but is also being used increasingly as the first choice for securing airway in elective cases. I agree with Dr. Stanley 1 that securing the airway in the shortest time and with minimal instrumentation is in the best interest of the patient and represents good clinical care. However, I tend to disagree that the GlideScope® meets all of these criteria. Although I find this device useful in difficult intubations, I rarely use it before performing a direct laryngoscopy in anticipated difficult intubations and almost never as a first-attempt intubation device in intubations not expected to be difficult. The major problem with GlideScope® is the difficulty in directing the endotracheal tube (ETT) toward the vocal cords. Hence, the use of stylet is almost mandatory while intubating under GlideScope® guidance. Despite the fact that a variety of stylets and ETTs have been suggested to increase the chances of successful intubation with GlideScope®, there are numerous reports of airway trauma during intubation attempts. The GlideScope® rigid stylet (Verathon Medical) is not always useful in directing the ETT toward the cords. However, a malleable stylet is usually effective. Although a 90° angulation of the stylet-loaded ETT is usually successful in most intubation attempts, sometimes a change in angulation is needed, and although it can be achieved easily, this requires the tube to be taken out before intubation can be attempted again, increasing the intubation time.

The eventual goal in airway management is to be able to pass the tube through the cords to ventilate the lungs and having a good view of the glottis greatly facilitates this goal; it is helpful to think of “laryngoscopy” and “intubation” as two separate steps in airway management, wherein difficulty could be encountered at the level of either step. Although satisfactory view of the glottis may sometimes not be achieved with direct laryngoscopy, intubation does not take very long if a reasonable view is achieved. GlideScope®, on the contrary, provides a good view of the glottis readily but the intubation is not always straightforward. Also, it is not uncommon for intubation to be successful with a direct laryngoscopy after the failure of GlideScope®-guided intubation. In patients with normal airway anatomy, GlideScope® use may be associated with an increased risk of airway trauma and postoperative sore throat. A recent study has demonstrated that in anticipated difficult intubations, although the incidence of difficult laryngoscopy (Cormack–Lehane ≥ III) is considerably less with GlideScope® compared with conventional Macintosh laryngoscope, the laryngoscopy time is similar between the two, and importantly, the intubation time is significantly less with the Macintosh blade. Experience from the emergency department also shows that although the rates of successful intubation on first attempt are not significantly different between GlideScope® and direct laryngoscopy, intubation using GlideScope® requires significantly more time. Moreover, an assistant is frequently required to pass the ETT over the stylet. Hence, I personally find it hard to justify using GlideScope® as the first-choice method for laryngoscopy, particularly for rapid sequence induction. Conversely, the equipment for conventional direct laryngoscopy is widely available, simpler to use, and less expensive than GlideScope®. In my opinion, the GlideScope® is a useful backup tool for intubations that failed with direct laryngoscopy. So, although I agree with