compared with conventional hemostasis for thyroidectomy.\(^3\)

Second, data on thyroid-stimulating hormone levels were only collected at the first preoperative consultation; we did not collect data on thyroid-stimulating hormone, triiodothyronine hormone, or thyroxine hormone levels on the day of surgery. Because the study lacked data on thyroid hormone levels immediately before surgery, the effectiveness of preoperative treatments could not be assessed.

Medical treatment should precede surgery. However, the results of this large nonrandomized clinical trial may encourage endocrine surgeons to reassure and motivate patients to undergo total thyroidectomy as a definitive treatment for hyperthyroidism.

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**Author Contributions:** Drs Gerard and Mirallié had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis.

- **Concept and design:** Blanchard, Mirallié.
- **Acquisition, analysis, or interpretation of data:** Gerard, Hamy, Lifante, Pattou, Christou, Mirallié.
- **Drafting of the manuscript:** Gerard, Christou.
- **Critical revision of the manuscript for important intellectual content:** Hamy, Lifante, Pattou, Christou, Blanchard, Mirallié.
- **Obtained funding:** Mirallié.
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**COMMENT & RESPONSE**

**Shared Decision-making and Stakeholder Engagement in COVID-19 Tracheostomy**

**To the Editor** We read with much interest the article of Kwak et al,\(^1\) titled “Early Outcomes From Early Tracheostomy for Patients With COVID-19.” The authors’ results challenged recommendations to delay or avoid tracheostomy in patients with coronavirus disease 2019 (COVID-19) categorically. However, we would like to pay attention to several aspects according to the tracheostomy in patients with COVID-19. Percutaneous and open tracheostomy have a comparable level of safety for medical staff and patients. However, each of these methods has considerable limitations.\(^1-3\) Unfortunately, the authors did not present any differences in the results depending on the tracheostomy method used.

Speaking about reducing the patient’s decannulation time after tracheostomy, according to Hernández et al,\(^4\) basing the decision to decannulate on suctioning frequency plus continuous high-flow oxygen therapy reduced the time to decannulation. In combination with the results of Kwak et al,\(^1\) it could improve the treatment outcomes of patients with COVID-19.

However, the timing of tracheostomy is controversial owing to the infectivity of patients with COVID-19. Available evidence suggests that viral shedding is maximal in the first...
week of infection, although positive RNA findings on swabs may persist for considerably longer. 2

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To the Editor Kwak and colleagues 1 reported outcomes of patients undergoing tracheostomy for coronavirus disease 2019 (COVID-19) critical illness, providing valuable insights into risk of viral transmission and clinical outcomes following tracheostomy, while dispelling misconceptions around timeline of COVID-19 infectivity. Although the observational design precludes firm conclusions on timing of tracheostomy, the data provide a stepping off point for deeper examination of approaches to improve patient-centered care and ensure stakeholder engagement.

One challenge with instituting an early tracheostomy strategy is that many patients requiring ventilation may be unable to tolerate the procedure. An apneic test can be helpful in demonstrating physiological reserve prior to tracheostomy. 3 To positively influence the trajectory of patients with severe COVID-19, tracheostomy ideally occurs only after there are signs of improvement, and after the patient demonstrates sufficient physiological reserve to tolerate the inevitable derecruitment and desaturation associated with tracheostomy.

The quandary with early tracheostomy is that some patients who undergo tracheostomy would have exhaled swiftly or were fated to succumb to their illness, with either scenario subjecting patients and clinicians to procedures that were without benefit. The New York University team’s criteria for undertaking tracheostomy included expectation of prolonged ventilation; however, these criteria did not include failed extubations, so some such patients might have been extubated without tracheostomy. Furthermore, the selection criteria may have introduced a systematic bias, such that patients with more favorable prognosis were more likely to undergo early tracheostomy. Amid rapid escalation in critical care needs, early tracheostomy may also free up critical care resources.

Stakeholder engagement by clinicians, patients, and family remains imperative, with a role for shared decision-making. Prolonged translaryngeal intubation has important implications for patient quality of life. Survivorship after COVID-19 has cognitive, mental health, and physical dimensions. Understanding what patients and families want can inform choice or timing of interventions beyond simply surviving. 3 Early tracheostomy may mitigate airway injury risks, 4 allow earlier restoration of speech and swallowing, and avoid prolonged sedation, which risks muscle wasting, cognitive impairment, and psychiatric morbidity.

As hospital services adapt to pandemic demands, critical care has evolved with a larger role for noninvasive ventilation. The New York University pandemic response mirrors the strategies implemented at other major hospitals, which also found that early tracheostomy was associated with non inferiority and possible benefit. 5 Although randomized clinical trials of timing for tracheostomy are mainly aspirational during the COVID-19 pandemic, comprehensive prospective data collection through data registries, such as the Global Tracheostomy Collaborative (http://www.globaltrach.org), may further illuminate these critical questions.

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To the Editor The article by Kwak et al 1 suggested that in patients with respiratory failure related to coronavirus disease 2019 (COVID-19), early tracheostomy (within 10 days of endotracheal intubation) was noninferior to late tracheostomy, resulting in

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a reduction in length of stay (LOS). We agree with the authors’ postulation that the traditional categorization into early and late tracheostomy groups is not sufficient in this population. In fact, a multisociety consensus statement highlighted that specific timing for tracheostomy cannot be recommended, a statement subsequently supported by published studies.2,3

As Kwak et al1 point out, the timing of tracheostomy is dependent on disease severity, viral load, infectivity, and patients’ clinical course. We believe that clinicians should carefully interpret the results of the published studies and focus on patient-centered outcomes. Kwak et al3 showed a reduction in the hospital LOS with an early tracheostomy, but there was no difference in the time to discontinuation of mechanical ventilation and decannulation. A recent meta-analysis4 of 18 studies also did not show a benefit of early tracheostomy. Although we acknowledge that a decrease in LOS is cost saving for hospitals, if patients are still requiring mechanical ventilation at the time of discharge, they will likely be transferred to a long-term acute care (LTAC) facility, which is not necessarily a patient-centered practice. Recent data have shown that LTACs are already playing a dual role as a substitute for ICU beds in regions with COVID-19 surges in addition to post-ICU partners in the continuum of care, and this may stretch already thin resources.4

A recent study5 suggested that the optimal timing of tracheostomy is between 13 to 17 days, highlighting that in the first 12 to 14 days, patients have either been liberated from mechanical ventilation or have not survived. Thus, waiting for approximately 2 weeks provides a clearer picture of a patient’s course, and may prevent a procedure that later proves to be unnecessary. Thankfully, health care workers performing tracheostomy in patients with COVID-19 seem to be safe, but we cannot ignore the existence of asymptomatic carriers and the consequences. No study to date has reliably performed COVID testing of clinicians.

In the past year, we learned that we do not need to wait for 21 to 28 days to perform a tracheostomy in a patient with COVID-19. The current evidence, however, does not justify early tracheostomy. We trust that the emerging evidence will help us better determine the optimal timing of tracheostomy based on patient-centered outcomes.

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In Reply We appreciate the comments and responses to our article1 from our colleagues across the world, as we all collectively seek to understand how to optimize airway management, specifically with regard to timing of tracheostomy, in the setting of the ongoing coronavirus disease 2019 pandemic. All 3 of these letters highlight different challenges in aggregating, grouping, or randomizing patients who are intubated, because of the multiplicity of factors involved in decision-making on the road to tracheostomy. We agree particularly with Drs Rassekh, McGrath, and Brenner, that shared decision-making remains of central importance, though this inherently individualized approach can further complicate efforts to study larger cohorts systematically. We look forward to continuing these discussions, and contributing to our shared pool of prospective data, in the months and years ahead.

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