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EDITORIAL

Orotracheal intubation in the COVID-19 patient; a practice not exempt from risk

Intubación orotraqueal en el paciente COVID; una práctica no exenta de riesgos

Back in December 31, 2019, the Health Municipal Commission of the City of Wuhan, China reported, for the first time, a group of inexplicable cases of pneumonia that the World Health Organization (WHO) would later describe as the new SARS-CoV-2 coronavirus 2019. This infection rapidly spread from one person to the next, which forced the WHO to declare the new SARS-CoV-2 pandemic due to the fast spread of SARS-CoV-2 outside China.[1]

As it is well-known, patients infected with SARS-CoV-2 can develop viral pneumonia, which is characterized by acute respiratory failure with high requirements of intensive care unit (ICU) beds. By mid-February 2020, the very first case of acute respiratory distress syndrome (ARDS) was diagnosed in Italy,[2] and in little over a month, the number of patients admitted to the ICU in our country due to this new infection increased exponentially putting the resistance of our entire healthcare system to the test.[3,4]

Most patients admitted to the ICU presented with severe hypoxemic respiratory failure and, although different ventilatory support strategies were proposed.[5] Patients could need, at admission or later on these ventilatory support strategies in case of failed non-invasive support strategies, orotracheal intubation, and further connection to invasive mechanical ventilation.

Although intubation is a common procedure at the ICU setting, this technique is not harmless as the recent multicenter clinical trial 'International study to understand the impact and best practices of airway management in critically ill patients' (INTUBE)[6] clearly states. In this study, up to 45.2% of intubated patients experienced, at least, 1 major clinical adverse event, the main of which was hemodynamic instability (42.6%) followed by severe hypoxemia (9.3%), and cardiac arrest (3.1%). Although a high number of patients from 29 different countries was included, recruitment took place before the pandemic (from October 2018 through July 2019) meaning that, maybe, some of the conclusions may not be applicable to intubated patients due to COVID-19.

After the worldwide pandemic was declared, several recommendations were published by different medical societies on airway management in these patients.[7] Afterwards, the experience gained in some centers on the management of these patients during intubation was disclosed to everyone else.[8,9]

In this issue of *Medicina Intensiva*, Cattin et al.[10] disclose the results of an observational, prospective clinical trial conducted in 2 intensive care units (ICU) from Northern Italy from November 2020 through April 2021. The study primary endpoint was to determine the rate of major adverse events during intubation in a cohort of patients with COVID-19. Results show a higher rate of peri-intubation events than expected and reported in previous trials (73.94%) with predominant cardiovascular instability (65.49%) followed by severe hypoxemia (43.54%), which, *a priori*, would be the most anticipated complication in these patients—the so-called silent hypoxemia. Similarly, through thorough data mining, they also report on the pre-oxygenation procedures, drugs, and devices used, as well as on the intubation success rate.

This study includes a follow-up period of up to 6 h after intubation to register the appearance of any adverse events that may appear as secondary complications to intubation, which translates into the fact that some of the complications associated with intubation (pneumomediastinum) appear in higher rates compared to other series.[6] This could be associated with the higher risk of these complications reported in the target population of this study or in less thorough follow-up periods in the remaining studies.

We know that there are very many variations in different routine clinical practices regarding intensive care worldwide, which is why identical patients treated by

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different physicians have different clinical outcomes. In this study, almost all intubations take place at the ICU setting by trained personnel highly experienced in airway management being acute respiratory failure the main reason for the instrumentation of the airway, which reduces the variability attributed to management, thus giving greater consistency to clinical outcomes.

Although former studies have included procedural complications, this is the only population based clinical trial. It does so in a systematic, prospective, and multicenter way with a pre-established definition of these complications.

Recruitment does not include the first wave of the pandemic, and the number of patients excluded is high due to work overload (not including patients from night shifts), which may have conditioned the results limiting patients recruited and introducing selection bias.

Although it is not part of the study endpoints, I should mention how significant the use of video laryngoscope was compared to former studies. This technology has really moved forward and become widely available, which added to the cautionary self-protection measures during the procedure has greatly conditioned its use. Beyond the reason that triggered its use, the use of video laryngoscopes has impacted the intubation success rate, the rate of intubation on the first attempt, and lowered the rate of complications in these patients.

We should mention the professionalism, and investigative spirit of the participant health professionals who were involved in investigation projects when the COVID-19 pandemic was at its peak. Also, the existing healthcare collapse while these patients were being treated, and fatigue—both physical and psychological—took time away from us to undertake tasks different from healthcare.

Knowing the adverse events associated with our techniques and procedures should make us improve such procedures to achieve higher quality and safter routine clinical practices for our patients.

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