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CORRESPONDENCE AIRWAY MANAGEMENT

Utility of invasive pressure transducer for endotracheal tube cuff pressure monitoring: Implications during the SARS-CoV-2 pandemic

B. M. Munasinghe, MBBS, MD, Nishanthan Subramaniam, MBBS, Ramil Wickramasinghe, MBBS

Author affiliation: Department of Anesthesiology and Intensive care, District General Hospital, Mannar, Sri Lanka

Correspondence: Dr. B. M. Munasinghe, MBBS, MD; E-mail: malakafmp@gmail.com Phone: +94 232222261

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Novel use of invasive pressure transducers for endotracheal tube (ETT) cuff pressure (CP) monitoring was first described by Doyle JD[1] and later by Kim JB et al.[2] With the continuing SARS-CoV-2 pandemic, we have identified several practical uses and advantages of this method in this context.

Proning has been historically validated in improving oxygenation and the prognosis in severely hypoxaemic patients not responding to conventional oxygen therapy.[3] It has been found useful for SARS-CoV- 2 patients too. Such positional changes could affect the CP in the mechanically ventilated[4] patients with a risk of tracheal mucosal ischemia and micro aspirations, especially with extended duration of the ventilation. In cases of a leak in the ETT cuff, the healthcare workers are exposed to aerosols which are hazardous, especially in SARS-CoV-2. The authors noted that the use of manual CP monitors in this respect was practically difficult.

In the peripheral institutions, manual cuff pressure monitors are not usually available due to the cost. It is truer for isolated COVID intensive care units. The limited staff and heavy work load hinders the timely CP measurements. The need to wear personal protective measurements during each CP measurement (ideally every 4 hourly) has cost implications as well as physical exhaustion for the staff. The visibility of some commercial visors and goggles were found to affect reliable CP measurements.

In comparison, the method presented in this paper was found to be practical in our setup. The monitors used in COVID-19 intensive care contained invasive pressure monitoring facilities. As the routine surgeries had been cut down due to the pandemic, more invasive pressure transducers were available to be used for the purpose of CP monitoring. The initial setting up (Figure 1), zeroing,

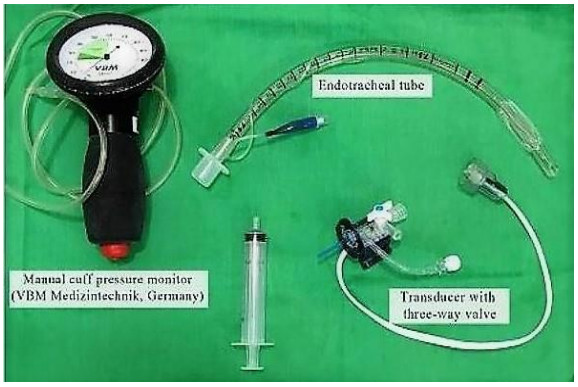

Figure 1: Equipment required

Figure 2: Setting up the monitoring system using the invasive BP transducer

appropriate CP values, and troubleshooting were demonstrated to the healthcare staff in the unit. The learning curve was relatively shorter. The apparatus did not require leveling as it contained air, in comparison to the method by Kim JB et al. where the system was filled with fluid. It was found to be less bulky and did not interfere with the rest of the monitoring and patient

Figure 3: Inflation of ETT cuff with air

Figure 4: Cuff pressure set at 30 cmH2O with manual manometer

management. Continuous pressure measurement was possible with a continuous trace on the monitor. The management. Continuous pressure measurement was possible with a continuous trace on the monitor. The alarm levels were set (upper 30 cmH2O, lower 20 cmH2O) thus changes were detected and managed. The apparatus was reusable for multiple patients after cleaning with disinfectants. Distant monitoring was also possible.

Figure 5 Continuous cuff pressure display on the monitor

Thus, we propose this innovative method to be adopted in the management of COVID-19 patients, whenever appropriate.

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