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Spotlight on Special Topics

# USE OF SIMULATION FOR ADVANCED RESUSCITATION OF IN-HOSPITAL CARDIAC ARREST PATIENTS WITH SUSPECTED OR CONFIRMED COVID-19

Moderated Poster Contributions
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**Background:** Coronavirus disease 2019 (COVID-19) has had a major impact on the incidence of cardiac arrest and survival. Simulation is frequently used to evaluate and train code teams with the goal of improving outcomes.

**Methods:** All participants engaged in a training on personal protective equipment donning and doffing for suspected or confirmed COVID-19 cases. Thereafter, simulations of in-hospital cardiac-arrest of COVID-19 patients, so-called "protected code blue", were conducted at a quaternary academic center. The primary endpoint was the mean time-to-defibrillation.

**Results:** A total of 114 individuals participated in 33 "protected code blue" simulations over 8 weeks: 27 were senior residents or attending physicians, 86 were nurses and 5 were respiratory therapists. Mean time-to defibrillation was 4.38 minutes (**Table 1**). Mean time-to-room-entry, time-to-intubation, time-to-first-chest-compression and time-to-epinephrine were 2.77, 5.74, 6.31 and 6.20 minutes respectively. 92.84% of the 16 criteria evaluating the proper use of personal protective equipment and management of a COVID-19 cardiac arrest patient were met.

**Conclusion:** Time-to-defibrillation was longer than the guidelines recommended target of ≤2 minutes during "protected code blue" simulations. While adherence to the modified advanced cardiovascular life support protocol was high, breaches that carry an additional infectious risk and reduce the efficacy of the resuscitation team were observed.

**Table 1. Mean of different efficacy measures and percentage of criteria of the evaluation form met during simulations of in-hospital cardiac arrest patients with suspected or confirmed COVID-19**

| Criteria | Percentage (%) |
|---|---|
| 1. Put on personal protective equipment before entering the room | 96.00 |
| 2. Dressing sequence respected | 100.00 |
| 3. Put the pads to analyze the rhythm | 95.45 |
| 4. Recognize ventricular fibrillation | 95.45 |
| 5. Defibrillate the patient before starting cardiac compressions or intubating the patient | 86.36 |
| 6. Analyze post-defibrillation rhythm before starting cardiac compressions or intubating | 91.30 |
| 7. Recognize that the patient is in asystole | 90.91 |
| 8. Proceed with the intubation before starting the cardiac compressions | 86.36 |
| 9. Do not bag the patient before the intubation | 100.00 |
| 10. Use the video laryngoscope to intubate | 84.21 |
| 11. Successful intubation of the patient | 100.00 |
| 12. Start cardiac compressions | 100.00 |
| 13.Properly remove personal protective equipment | N/A* |
| 14.Minimizes the number of providers in the room | 89.47 |
| 15.Roles are clearly identified both for physicians and for nurses | N/A* |
| 16.The code leader demonstrates leadership | 84.21 |
| Time-to-room-entry (minutes; mean [min, standard deviation]) | 2.77 (1.18) |
| Time-to-defibrillation (minutes; mean [min, standard deviation]) | 4.38 (1.43) |
| Time-to-intubation (minutes; mean [standard deviation]) | 5.74 (1.83) |
| Time-to-first-chest-compression (minutes; mean [standard deviation]) | 6.31 (1.97) |
| Time-to-epinephrine (minutes; mean [standard deviation]) | 6.20 (3.27) |

*N/A; non-available because of missing data.