Procedure proposal in front of a patient in cardiac arrest during the COVID-19 pandemia

Consell Català de Ressuscitació

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Given the exceptional nature of the COVID-19 pandemic and the need to prevent the spread of the virus among the population and especially among healthcare personnel, the **Catalan Resuscitation Council proposes** the following modifications for performing CPR

1. Non-healthcare or healthcare personnel out of duty who witness a cardiac arrest

Do no listen or feel breathing, no mouth-to-mouth ventilation. Use an AED as indicated; it may make chest compression unnecessary. If needed: Use chest compressions only. As far as possible, wear gloves and try to protect your mouth and nose in all cases, wash your hands as soon as possible according to the recommendations of the authorities, with water and soap and/or hydroalcoholic solutions.

PROTECTION BEFORE INFECTION

2. Outpatient Basic Life Support Units (EMS-units without physician):

As in the OOH environment every patient is likely to be COVID-19, one of the team members equipped with basic personal protective equipment (PPE) (goggles, mask, gloves and gown) starts continuous chest compressions on a patient in cardiac arrest with high suspicion or confirmation of COVID-19; meanwhile the other applies the AED having also basic PPE. No bag-mask ventilation until an advanced EMS unit arrives. If the team knows the patient is in cardiac arrest, one member of the team should put on a gown while driving, if ever possible.

In children cardiac arrest, initial ventilation is crucial: despite the risk of spread of viruses keep 5 initial bag-mask breath.

DO NOT START CPR WITHOUT WEARING APPROPRIATE PROTECTION.
PROTECTION BEFORE INFECTION

3. Out-of-hospital Advanced Life Support (ALS) units (EMS-units with a physician):

As in the OOH environment every patient is likely to be COVID-19, one of the team members equipped with basic PPE (goggles, mask, gloves and gown) starts continuous chest compressions on a patient in cardiac arrest and COVID-19 suspicion meanwhile the another team members puts on complete personal protective equipment (waterproof coveralls). Once all team members have put on the full PPE, one will take over chest compression to allow the first team member to put on full PPE. Another team member monitors heart rhythm with multifunction pads, proceeds with initial defibrillation if indicated. With full PPE, the assigned airway-member will place a supraglottic airway device (SGA) with a filter directly on the SGA. Resuscitation continues according to current ALS algorithm.

NO tracheal intubation of out-of-hospital patient. The proximity to the patient's mouth increases the risk of contagion, the complexity of intubation increases substantially with personal protective equipment especially in the out-of-hospital setting. Place a SGA as quick as the PPE allows, avoid bag-mask ventilation to reduce the splashing of COVID-19. Remember to place a filter between the SGA and the ventilation bag.

If a mechanical chest compressor device is available, two EMS-members equipped with basic PPE might place the chest compressor, and then get dressed with PPE, followed by standard ALS resuscitation with SGA ventilation. In case of high suspicion or confirmation of cardiac arrest before arrival, the PPE should be place while driving if possible. If not, as soon as possible.

Proper briefing assigning all roles and the flow of procedures will reduce the risk of contamination and infection.

DO NOT CARRY OUT ALS WITHOUT ADEQUATE PROTECTION IN EACH CASE.
PROTECTION BEFORE INFECTION

4. Hospitals (Emergency Room, Take-Over from OOH-EMS Services...):

A small number of team members is suggested to minimize the risk of contagion, four is considered appropriate. One extra person might function to supervise proper donning and doffing of the PPE and infection protection. This person can function as "running support" in case of needs, but also be a "rescue" person in case help is needed in the room – but then under full PPE protection.

In case of a "drop-in" patient under CPR: One team members, equipped with basic PPE (goggles, mask, gloves, and apron) starts continuous chest compressions meanwhile all other team members get dressed in complete personal protective equipment (waterproof coveralls). Once they get dressed in the complete personal protective equipment, one member will take over the chest compressions so that the first rescuer can also get dressed. Full ALS according to current guidelines with proper monitoring, defibrillation and airway management as soon as possible will continue.

If the EMS brings in announced a cardiac arrest victim the entire team is equipped with full PPE and had a briefing about the upcoming procedure and roles in the team.

The most experienced person shall be in charge of the airway manoeuvres and will orally intubate the patient as soon as possible mandatorily with a video-laryngoscope having a separated monitor (to allow best few with as much distance to the patient). Standard is a smaller tube mounted on an intubation guide ("Frova"), both measures increase substantially first attempt intubation success. First attempt intubation failure leads immediately to SGA placement. Put a filter directly in the tube or SGA for infection protection. Do the airway management as quick as the PPE allows, do NOT bag-mask ventilation (because of the splashing risk it entails). Place a filter directly on the airway devices.

If a mechanical chest compressor is used in-hospital, two members equipped with full PPE can place the chest compressor, and then dress in the complete PPE followed by resuscitation according to the ALS algorithm.

IN ALL CASES, ONCE THE ATTEMPTED RESUSCITATION EFFORTS HAVE BEEN FINISHED, PPE WILL BE WITHDRAWN UNDER SUPERVISION TO AVOID CONTAMINATION
WASH HANDS ACCORDING TO THE LOCAL HEALTH AUTHORITY RULES.
PROTECTION BEFORE INFECTION

KEY POINTS:

- NO MOUTH-TO-MOUTH VENTILATION - NO BAG-MASK VENTILATION
- ANY PATIENT IN CARDIAC ARREST ATTENDED BY A HEALTH CARE TEAM IS LIKELY TO BE INFECTED BY COVID-19 - PROTECTION BEFORE INFECTION
- AVOID STARTING RESUSCITATION WITHOUT WEARING BASIC PROTECTION EQUIPMENT (goggles, mask, gloves, and apron)
- AVOID CLOSE ACCESS TO THE AIRWAY WITHOUT FULL PROTECTION EQUIPMENT
- SPECIAL CARE ON DECONTAMINATION AND UNDRESSING
- BRIEFING ASSINIG ROLES AND TASKS REDUCES CONTAMINATION AND INFECTION
- REHEARS AND SIMULATE ALL PROCEDURES TO DECREASE INFECTION