Is It True that CPR Fraction mostly Caused by Physical Fatigue?

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Abstract: Introduction: Based on AHA 2015 guidelines the best fraction for CPR intervention is 60%. It means that in one CPR intervention the interruption must be not more than 40% of total intervention. The standard supposed to be different at each helper, because many factors will affect the effectiveness of CPR intervention. There were many study to know the fraction of each helper when do CPR. A CPR actor must reduce the interruption at the smallest thing such as forget the count of compression done. Method: This study is a systematic review with a purpose to understand the factors of CPR that affect the CPR fraction. The study used four search engine such as PubMed, Proquest, Scopus, and Sage Journal. From the four search-engines was found 15 article that matched the study purpose. Result: There are several factors that affect CPR fraction which are sex, weight, height, university degree, and the work place. These factors affect the CPR actor mostly at the case of physical fatigue and the number of distraction. Discussion: The most disturbing factor that affect the CPR fraction was the trouble in remembering the CPR count and the physical fatigue in the helper. The CPR count problem had been solved by the help of a tool. But the physical fatigue still need more discoveries to find the problem solver. It still unclear which solution that affect most of CPR fraction.

1 BACKGROUND

The change of AHA guidelines from 2010 to 2015 means a lot to the health practitioner especially the emergency and critical department. The need of consideration toward effectiveness cardiopulmonary resuscitation being highly emphasized. The main purpose of CPR is to restore a partial flow of oxygenated blood and breathing until the spontaneous circulation of blood returns in the patient. It is of paramount importance to keep in mind that the most vulnerable organ to ischemia is the heart itself, so measures need to be taken to restore enough blood circulation immediately in the coronary arteries in order to save the heart. This can be achieved through first performing chest compressions and later through special medications and techniques so that the heart maintains its normal functioning. In CPR, performing external high-quality chest compressions is of great importance in that it can increase blood output of the heart, increasing the blood flow to the heart and the brain, and hence improving the survival chance of the patient in the short run (3). The results of the studies done so far on CPR teams in hospitals shows that the chest compressions are not deep enough and that there are interruptions in compressions and ventilations due to the fatigue of the CPR team members (Rad and Rad, 2017).

The degree of fatigue and difficulties in performing CPR by rescuers is an important factor when addressing the resuscitation effects of various C/V ratios. Previously obtained data indicate that CPR requires strenuous effort and that the quality of chest compression can decline soon after ECC is started. Riera et al found that health professionals can comfortably apply uninterrupted ECC for 2 minutes. Rescuer fatigue occurs after 3 minutes of continuous ECC. Although a 30:2 ratio delivers better chest compression than a 15:2 ratio, it is more exhausting (Chi, Tsou and Su, 2010).

The blood flow generated by chest compressions is a function of the number of chest compressions delivered per minute and the effectiveness of each chest compression. The number of compressions delivered per minute is clearly related to survival. This depends on the rate of compressions and the duration of any interruptions. Chest compressions should be delivered at a rate of at least 100 compressions per minute since chest compression rates below 80/min are associated with decreased ROSC. Any interruptions of chest compressions should be minimized. Legitimate reasons to interrupt
chest compressions include the delivery of non-invasive rescue breaths, the need to assess rhythm or ROSC, and defibrillation. Hold compressions when non-invasive rescue breaths are delivered. Once an advanced airway is established there is no need to hold compressions for further breaths. High-quality compressions must also continue while defibrillation pads are applied and the defibrillator is prepared. Aim to minimize interruption of chest compressions during the changeover of rescuers. Including all interruptions the patient should receive at least 60 compressions per minute (Rajab et al., 2011).

2 METHODS

This review production started with found journal article with PICO framework, researched population was cardiopulmonary intervention (CPR), physical fatigue event in CPR intervention, quality of CPR, and efficiency of CPR intervention. The key word was “Cardiopulmonary”, and “Resuscitation” and “Physical Fatigue”, and “Quality”, “Efficiency” in the database PubMed, Proquest, Scopus, and Sage Journal with date restriction started from 2010 until 2018.

From the searching process we found 20 journals, and 13 journals selected which fulfilled inclusive criteria: factor that affected CPR intervention. Then we did review from journal selected.

3 RESULTS

According to the result of the study showed that the factor that affect physical fatigue in CPR intervention are sex, weight, height, university degree, and the work place of the rescuer were significantly correlated with the onset time of physical fatigue experienced during CPR operation. Most of the reviewed journals said that were the related factors.

Around 70% of the study said that CPR intervention effectivity which shown by the ideal achieved CPR fraction according to AHA 2015 guidelines (60%) was affected by physical fatigue.

4 DISCUSSION

It still uncertain what caused the physical fatigue, wether it is caused by some study recommended that male nurses with greater height and weight be employed in the rescue teams in ICU wards. Moreover, it seems mandatory for the nurses currently working in such teams in hospitals to improve their physical fitness through doing aerobics on a regular basis so that they may experience less fatigue during their CPR operations in future.

5 CONCLUSIONS

It is need to conduct more study related to physical activity such as compare between each position of CPR to understand more about the physical fatigue in CPR. Position seems to have much influence in CPR intervention

REFERENCE

