

Comparison of using CPR RsQ Assist and conventional chest compression in experienced and non-experienced medical provider

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Abstract

Backgrounds: In cardiac arrest patient, an effectiveness of chest compression is a critical determinate for survival. Current guidelines of the American Heart Association (AHA) recommended 2 to 2.5 inches (5-6 cm) deep at 100 to 120 per minute. This may be primarily cause to providers fatigue and reduce their quality over time. The experience of medical provider to chest compression was associated with the patient outcome. The CPR RsQ Assist® is a new device for hands-only cardiopulmonary resuscitation and several studies showed that the automatic device is more effective than manual chest compression.

Objective: This study aims to compare the quality of chest compression by using CPR RsQ Assist in experienced and non-experienced group.

Methodology: The study was a randomized controlled trial which conducted at the Ramathibodi hospital. We randomly included 79 participants from medical students, paramedic students, EMTs and emergency physician residents to chest compression with CPR RsQ Assist and hands-only chest compression. Then we were subgroup analysis with experienced and non-experienced group. The participants were assigned to perform chest compression on the manikin model for 2 minutes. During chest compression, quality parameters were recorded including with chest compression rate and average rate of compression.

Result: There were 79 participants in the study; categorized as experienced group (N=27) and non-experienced group (N=52). There was no statistical significance between both groups in terms of gender, body weight, height and BMI. At the first and second minutes, compression rate was higher in standard compression in experienced group (107.2±8.4 vs 135.1±15.2; P<0.001 and 107.6±8.4 vs 129.5±15.6; P<0.001) and non-experienced group (108.5±10.2 vs 132.4±16.5; P<0.001 and 109.1±10.9 vs 126.5 ±32.0; P=0.012). Using CPR RsQ Assist, the compression rate was about 100-120 per minute follow by AHA recommendation. The mean compression depth was not statistically significantly different in experienced group (46.7±6.7 vs 48.7±7.6; P=0.481) and non-experienced group (46.2±6.4 vs 49.4±5.4; P=0.051). Using CPR RsQ Assist, the compression depth was not within the standard of AHA recommendation.

Conclusion: Using CPR RsQ Assist can help the healthcare provider to improve the compression rate but not improve the compression depth of chest compression.

Accuracy of moderate risk criteria in Mild TBI to predict positive result on CT brain

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Abstract

Backgrounds: The most common presentation of traumatic brain injury in Emergency Department is Mild traumatic brain injury (Mild TBI). The risk assessment of positive result in CT brain uses Thai Clinical Practice Guidelines for Head Injury, 2008. Selecting the patients with MTBI for CT brain using risk factor of the patients. In moderate risk group of TBI, every patient must be sent to CT brain. The moderate risk criteria in Mild TBI is vomiting > 2 times, transient loss of consciousness, post traumatic amnesia, headache, risk of coagulopathy, alcohol/drug intoxication.

Objective: This study aims to study the accuracy of moderate risk criteria to predict positive result on CT brain.

Methodology: Retrospective data of moderate risk Mild TBI from medical records and divided patients into 2 groups; those with abnormal CT results and those without brain CT abnormalities. Then, analysing the risk factors and conditions of these two groups in order to indicate the risk factors related to an abnormality in the brain.

Result: Total number of patients were 708 persons, comprise of 100 (14.12%) persons with abnormal brain CT and 608 (85.88%) persons without brain abnormalities. Throughout the multivariable analysis showed the risk factors of moderate risk criteria that have important effect on brain abnormalities is vomiting > 2 times (OR 2.27; 95% CI 0.75-6.87), transient loss of consciousness (OR 5.85; 95% CI 2.92-11.71), post traumatic amnesia (OR 1.84; 95% CI 0.90-3.76)

Conclusion: CT brain is necessary for moderate risk Mild TBI criteria in patient with vomiting > 2 times, transient loss of consciousness and post traumatic amnesia.