Original Research

Echo During CPR InTrauma

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BACKGROUND AND OBJECTIVES:

[1]Echocardiographic evaluation in resuscitation management was evaluated byEmergency physicians with respect to incorporation into the cardiopulmonary resuscitation process, performance, and physician's ability to recognize characteristic pathology. [5]The aim of the echocardiographic evaluation in resuscitation management examination is to improve the outcomes of cardiopulmonary resuscitation in trauma.

[2]In emergency and critical care medicine, according to the resuscitation guidelines of theAmerican Heart Association, echocardiography is recommended in identifying and treating the correctable causes of cardiopulmonary arrest.

Not many studies has been published in India regarding the efficacy of Echocardiography in resuscitation. Time is an essential component for successful cardiopulmonary resuscitation (CPR).[3]Studies have shown that "Point-of-care focused ultrasound" or "goal-directed ultrasound" in the evaluation of patients with cardiac arrest the immediate application of sonography or echocardiography during resuscitation could result in improved patient outcome .

[4]Echocardiography can identify acute global, left, or right heart failure, pericardial tamponade, thromboembolism and hypovolemia in suspected myocardialInsufficiency which cannot be made with standard physical examination or with theElectrocardiogram during cardio pulmonary resuscitation. This study has been done to intend incorporation of emergency echocardiography to Improve outcome.

MATERIALS AND METHODS:

A prospective, observational and semi interventional study undertaken over a period of 6months (Apr-2021 to Sep-2021), done on 45 adult patients (age>18 years) undergoing cardiopulmonary resuscitation who presented to Emergency Medicine Department at Tertiary care centre.Echocardiography performed every 2 minute simultaneously with pulse check within 10

seconds throughout the arrest, which is incorporated into the current Advanced cardiac life-support algorithm for cardiac arrest.

RESULTS:

Of 45 patients in our study, in our study rhythm at time of arrest was pulseless electricalActivity in 27 patients (60%) and 18 had asystole (40%). Out of 45 Patients 26(58%) had return of spontaneous circulation (ROSC) and 19 (42%) had no ROSC and 30 patients (66.7%) expired and 15(33.3%) discharged.

In our study there were nil interventions in 40 patients (88.8%) and interventions with help ofEchocardiography were done in 5 patients (11.2%). There is a statisticalSignificance found between ROSC and outcome with $P = 0.003 < 0.01$.There is aStatistical significance between interventions and outcome with $P = 0.0005<0.001$.

DISCUSSION:

The purpose of this study was to determine efficacy of focussed echocardiographicevaluation in cardiopulmonary resuscitation management.

It is well documented that focused bedside echocardiography can bring importantanatomical and hemodynamic information in an emergency department. It can affect thePatient's management, direct further diagnosis and modify therapeutic intervention.

Panaoulaset al. proved a significant impact of point-of-care (POC) echocardiography onFinal clinical diagnosis in cardiac trauma patients.

The use of POC echocardiography significantly improved the diagnostic accuracy incomparison to physical examination, medical history and ECG findings.

Consequently, this study demonstrated that the use of focussed echocardiography in anEmergency department allowed for the rapid confirmation or exclusion of diagnosticHypotheses in cases where there was doubt regarding the diagnosis after theAssessment of medical history, physical examination, and ECG reading.

In the right clinical context, use of focussed echocardiography can direct the clinician atthe bedside in important next treatment interventions, optimize diagnostic efficiency, andassess the response to performed interventions.

CONCLUSION:

On the basis of my overall results of study we conclude that echocardiography is a non-invasive, rapid and bed side tool. Echocardiography can be used as bed side tool, which is fast and efficient to detect various causes of cardiac arrest in trauma. In our study Echocardiography has higher diagnostic values in detecting various causes of cardiac arrest in trauma.

Hence, echocardiography can be immediately implemented, highly feasible and hasShown to drive clinical decision with high accuracy helping in early therapeuticIntervention in a patient with cardiac arrest in Emergency medicine department.

KEY WORDS:

Trauma, Acute coronary syndrome, Emergency medicine department, echocardiography, Emergency Echocardiography,CPR

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