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POSTOPERATIVE COMPLICATIONS OF CARDIAC SURGERY AS CARDIAC ARREST AND ITS MANAGEMENT

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Abstract:

Objective: *To evaluate the anesthetist's role in cardiac anesthesia in case of cardiac arrest.*

Study Design: *A retrospective study.*

Place and Duration: *In the Cardiology Department, Punjab Institute of Cardiology for one-year period from August 2016 to August 2017.*

Methodology: *In this study we reviewed possible actions for each of the related events for 712 patients undergoing cardiac surgery.*

Findings: *Of the 712 patients who underwent cardiac surgery, 28 (3.9%) had cardiac arrest due to various problems occurs postoperatively. In 50% of the cardiac arrest cases massive bleeding occurs in 1.9% of patients); In 28.5% cases of cardiac arrest, supraventricular tachycardia occurs in 1.1% of patients). In 7% cases of cardiac arrest, cardiac failure occurs, 0.2% of patients); In 3.5% cases of cardiac arrest, Aorta Arc Rapture occurs in 0.2% of patients); Pericardial effusion in 3.5% cases of cardiac arrest in 0.1% of all patients); Right atrium Rupture occurs in 3.5% cases of cardiac arrest, 0.3% of patients) was diagnosed after cardiac surgery. Seven deaths occurred from 28 cases (cardiac arrest cases in 25%, 0.2% of patients). The most common massive bleeding (50%) for heart failure during the postoperative phase was followed by non-pulsatile ventricular tachycardia (29%). 6 patients had morbidity and fifteen patients remaining were cured.*

Conclusion: *Because it is a complete systematic patient assessment, equipment and medication that you need to complete, there are usually multiple factors leads to cardiac arrest under cardiac anesthesia. We found that the cardiac anesthesia-related diagnosis and treatment of cardiac arrest were significantly different from those found elsewhere.*

Key words: *Arrest, cardiac anesthesia, massive hemorrhage, heartless ventricular tachycardia.*

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INTRODUCTION:

Recently, many studies have been published on cardiac arrest associated with anesthesia. There are five main activities, including: more than 500 cases of every age in the USA, and 100,000 children in the United States. In Japan, 2.3 million cases and in France more than a 4 million cases. The results are quite consistent. The cardiac arrest that may be associated with anesthesia was generally between 0.5 and 1 in 10,000 cases and 1.4 in 10,000 cases in the children; 56% of them were under one year old. The cardiac overall ratio is ten times greater, with surgical technical problems, uncontrolled bleeding, widespread co-morbidity and increase age. In the anesthesia, hospital mortality was greatly less than the operation rate, and eighty percent of these patients were free from the hospital with no complications. It is thought that cardiac arrest associated with anesthesia can be largely prevented and is associated with human errors or inadequate human wealth. Cardiac surgery Anesthesia is the most challenging part of anesthesiology. The greatest extent of critical patients with very weak adaptive reserve of the cardiovascular system are in this area. These patients usually have ischemic heart disease and high blood pressure. All these factors increase the risk of anesthesia. For this reason, it is very important that drugs be well selected and that the compensatory mechanisms of the cardiovascular system be protected under surgical stress conditions. After cardiac surgery, the common complications are Arrhythmias and supraventricular arrhythmias are common. Suggested hypotheses to explain atrial fibrillation (AF) high incidence include post-operative increase in adrenergic stimulation, atrial necrosis associated with ischemia / atrial necrosis, and prolonged or incomplete atrial anesthesia and electrolyte imbalance during and after bypass, pericarditis or cardiopulmonary. For ventricular arrhythmias, some patients are considered at high risk. The purpose of this study is to determine the causes of serious problems after cardiac surgery.

MATERIALS AND METHODS:

This Retrospective study was held in the Cardiology Department, Punjab Institute of Cardiology for one year period from August 2016 to August 2017. 28 patients (23 males, 6 females, 43-72 years, mean 58 ± 10.92 years) developed cardiac arrest postoperatively in the selected population. Data collection: Data on the patients characteristics was obtained and the manner and presentation timing, the related treatment information and investigations done were recorded. Information collected about heart surgery includes: grade of urgency, type of operation, time of application, cross-linking time and method of myocardial protection. ICU notes were checked to determine the duration of extubation and in intensive care unit stay and its duration. A note on inotropic requirements, support for intraaortic perioperative arrhythmias, balloon pump and any long-term hypotension period. Through angiographically, Left ventricular function was determined. Carotid artery duplex screening was performed as previously described for patients younger than 65 years and carotid artery thrombosis including transient ischemic attacks. Two blind scholars rated atherosclerosis independently as trivial or no atherosclerosis; mild atherosclerosis (intima <3.0 mm thick without intima irregularities); documented complications include 12-lead ECG myocardial infarction (including new Q waves or later> 24 hours of lactic dehydrogenase (including new Q waves) or atherosclerosis or severe mediastinum. Low output syndrome cartilage (heart rate <2.0 L.min) -1.M-2 fractional ratio surgery, independent treatment), renal failure (required dialysis) and death. Continuous monitoring of ECG telemetry was performed from the patient to the discharge from the atrial fibrillation document.

RESULTS:

Study characteristics were demographic and were listed in 712 patients (Table I). Post-operative complications, including mass due to heart failure, bleeding in 28 patients (3.9%) (heart failure, 50% of cases 1.9% of patients); Supraventricular tachycardia without heart (heart rate, 28.5% of 1.2% of patients); Aorta Arc Rapture (3.7% of cardiac arrest cases, 0.1% of patients); Heart failure (8% of cardiac arrest cases, 0.2% of patients); Because the buffer pericardial effusion (heart rate, 3.6% cases in 0.1% of patients); right atrium (cardiac arrest cases occurs in 3.5% in 0.1% of patients) rupture of the atrium was detected after cardiac surgery (Figure-1).

Table-I: Characteristics of the 712 Patients undergoing Cardiac Surgery (n = 712)

Characteristics	*Number (%)*
Age, years (mean ± SD)	62 ± 12
Male/female	527/185
Diabetes mellitus	226 (31.7)
Hypertension	389 (54.6)
Hyperlipidemia	214 (30)
Smoking	451 (63.3)
Pulmonary disease	228 (32)
Carotid artery stenosis	
Moderate right stenosis	112 (15.7)
Severe right stenosis	84 (11.8)
Moderate left stenosis	210 (29.5)
Severe left stenosis	87 (12.2)
Ascending aorta atherosclerosis	
Normal	435 (61.1)
Mild	145 (20.4)
Moderate/Severe	132 (18.5)
Coronary stenosis	
None	141 (19.8)
One vessel	225 (31.6)
Two vessel	165 (23.2)
Three vessel	181 (25.4)
Types of surgery	
CABG	654 (92)
CABG/valvular	25 (3.5)
CABG/carotid endarterectomy	33 (4.5)
Cardiopulmonary bypass time, min	119 ± 43
Cross-clamp time, min	79 ± 28

Moderate and severe carotid artery stenosis refer to stenosis of >50% but <80% and >80%

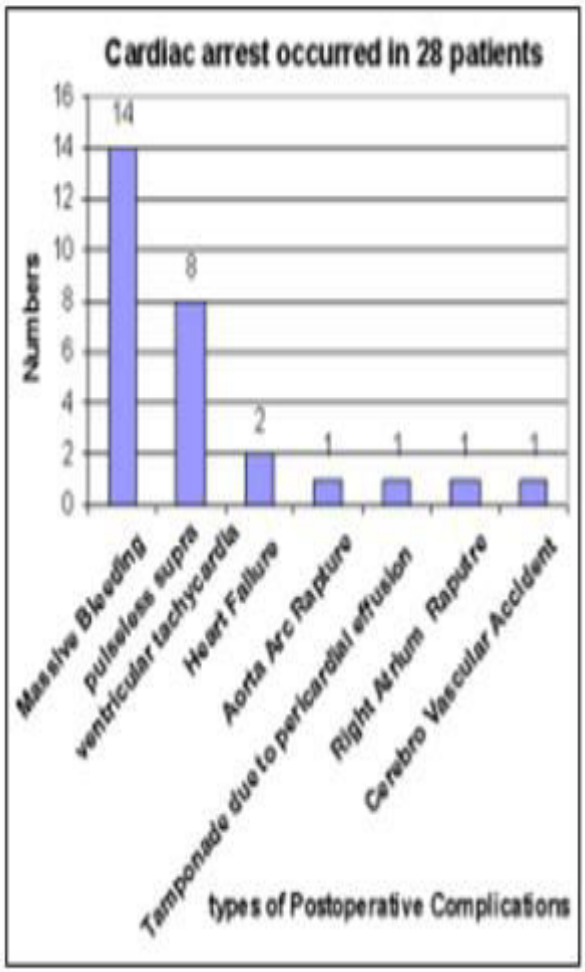

Fig-1: Reasons for cardiac arrest in 28 patients

Unfortunately, 28 deaths in patients with heart failure were 7 deaths (25% of cardiac insufficiency cases, 0.1% of patients). The most common cause of postoperative heart failure is massive (50%) pulse bleeding followed by supraventricular tachycardia in 29.05%. 6 patients had morbidity and the remaining fifteen patients were cured. no deaths occurred in the remaining 15 patients (a transient morbidity but 48 hours of "complete remission"). medical illness or surgery was one of the two existing four deaths, drugs and surgical etiologic factors. The characteristics of 29 patients who developed cardiac arrest in the postoperative phase are shown in Table II.

Table-II: Characteristics of the 28 patients who developed cardiac arrest in postoperative phase (n = 28)

Characteristics	*Number (%)*
Age, years (mean ± SD)	57.6 ± 11
Male/female, n	22/6
Diabetes mellitus	14 (50)
Hypertension	20 (71.4)
Hyperlipidemia	18 (64.2)
Smoking	11 (39.2)
Pulmonary disease	10 (35.7)
Carotid artery stenosis	
Moderate right stenosis	12 (42.8)
Severe right stenosis	4 (14.2)
Moderate left stenosis	10 (35.7)
Severe left stenosis	2 (7.1)
Ascending aorta atherosclerosis	
Normal	0
Mild	5 (17.8)
Moderate/Severe	2 (7.1)
Coronary stenosis	
None	3 (10.7)
One vessel	2 (7.1)
Two vessel	5 (17.8)
Three vessel	18 (64.2)
Types of surgery	
CABG	25(89.3)
CABG/valvular	3 (10.7)

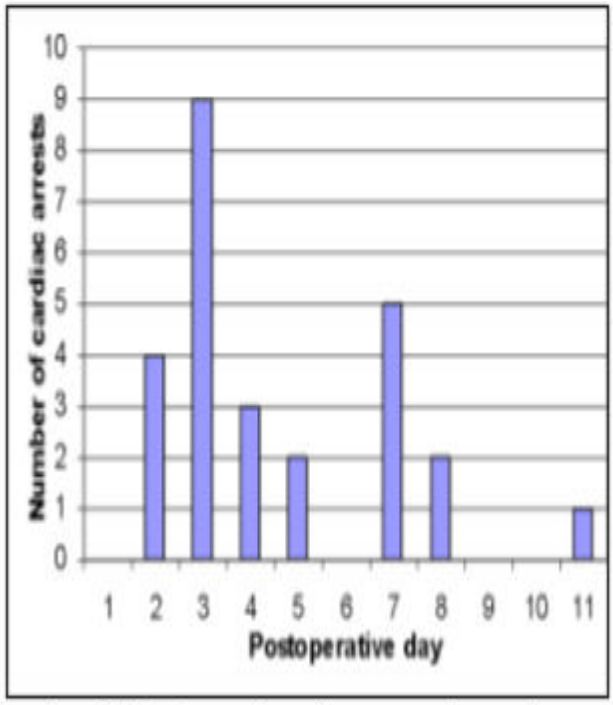

Fig-2: Numbers of cardiac arrest detected in postoperative days among 28 patients

In 2 of 28 patients, heart failure was detected on days after surgery. Twenty-eight reports talked about the capnography.

DISCUSSION:

Conventional diagnostic guidelines are problematic due to two reasons for assessing the state of consciousness to correct cardiac condition 29-31 combined with cardiac anesthesia and then due to respiratory, respiratory and circulatory (ABC). First, there is a continuous period of deterioration in the cardiac output that makes it difficult to determine the point at which it becomes apparent. In this study, several patients were tempted to treat the patient as an anesthetist because heart rate, line pressure was seen on the monitor, because intracoronary pressure was monitored during visualization. Cardiac arrest. Second, it is an arbitrary decision that it will be an important period of arrest. For example, should an unspecified 30-second stop be recovered quickly? The diagnosis should be made at COVER CO, but other factors (listed below) often accompany or accompany a pulse. The ECG is normal or there is blood pressure, but if the pressure is low, the cardiac arrest can not be suspected if the oximeter signal is weak. In these situations, circulation may be dangerous and may delay recognition. In all these cases the patient's pulse should be felt and confirmed by placing the oximeter probe on his finger and on the patient, and the oxymetrynin function should be removed. Suddenly, when cardiac arrest is detected when cardiac arrest is detected, etiologic factors are usually detected. Cardiac arrest is significantly different from those seen elsewhere in relation to cardiac anesthesia. Cardiac anesthesiologists should receive special instructions and anesthesiologists should regularly participate in cardiac anesthesia, as well as participate in a refresher course on diagnosis and treatment of cardiac arrest. Differences with non-anesthetic cardiac arrest should be emphasized.

Diagnosis is done before and with greater precision; standard therapeutic methods are used less frequently and less frequently; Measures to alleviate specific anesthesia and surgical causes are often possible. The outcome is usually good because most patients leave the hospital alive and apparently well.

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