

Assessment of the incidence, risk factors, and outcomes of postoperative neurological complications in patients undergoing cardiac surgery.

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ABSTRACT

The research aims to identify risk factors and know neurological complications until after heart surgery, where samples were collected. The characteristics of patients in Nasiriyah Heart Center were identified and consisted of two groups, the first group is patients, which consisted of 60 patients, and the second group is 40. The evaluation was carried out, and the percentages that included symptoms were identified. Postoperative risk factors for atherosclerosis, stroke, and other potential risk factors were evaluated, Stroke (IS) and transient ischemic attack (TIA) of a circulatory nature. We performed a retrospective review, case-control, and postoperative monitoring in the intensive care unit of patients who underwent cardiac surgery.



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1. INTRODUCTION

It is known that cerebrovascular disease (CVP) and diseases of the cardiovascular system have the same local and systemic similarity. The leading risk factors include smoking, obesity, hypercholesterolemia, arterial hypertension (AH), diabetes mellitus, insufficient physical activity, and heart failure—acute and chronic vascular insufficiency to cerebral blood flow and the development of strokes [1], [2]. Pathology is detected in 35-40% of stroke patients. Furthermore, the presence of patients with acute coronary syndrome increases the risk of stroke [3]. Despite advances in surgical techniques, perioperative complications affecting the nervous system and their mechanisms persist. Sometimes, neurological (CN) complications in these patients can affect the brain as well as the spinal cord and peripheral nerves. Cerebrovascular disease, the most common, causes high morbidity and mortality and increased hospital stay and health resources used [7- 9]. By analyzing the studies, it becomes clear to us that the occurrence of stroke after heart surgery or surgery depends mainly on the methodology used in the diagnosis. Stroke was found in 1.9% of patients who underwent heart surgery. 3.6% of those who underwent simple valve replacement, and in 3.3% of patients who They underwent surgery [10], [11]. patients who underwent multivalvular replacement, the numbers are consistent with previous series indicating An increase in the rate of neurological complications was observed in patients who had to undergo valve replacement, as the incidence of stroke became in 18 % of patients [12], [17- 35].

The pathogenesis of this complication remains uncertain; the pathogenic mechanisms traditionally proposed are systemic hypo perfusion and perioperative embolization (clearly documented by transcranial Doppler) of the macro and micro valves from the aorta, from the heart cavities or from the cardiopulmonary bypass circuit itself, due to a lower frequency of CN in patients undergoing resection [13], [14]. Coronary angiogenesis without an extracorporeal pump. In histopathological studies, arterial and capillary dilatation was observed, suggesting the presence of micro emboli in the distal bed as the cause of this complication. The appearance of CN in the postoperative period can be affected by other reasons [15], [16].

2. Patient and method

This study was conducted from Nasiriyah Heart Center, where 60 patients were identified, and all necessary and required examinations were performed for the patient.

As for the control group, 40 control surgery patients without neurological complications were collected.

2.1 Research design

This study was retrospective to patients suffering from cerebrovascular problems and general problems in the nervous system, where the complications that occurred after surgery were identified by imaging.

CT or magnetic resonance of the brain the process of surgical operations leads to many complications for the patient. Some of these complications are simple and temporary and can be treated easily, including serious complications that may threaten patients' lives, but rare.

2.2 Study period

Demographic information and data were collected from Nasiriyah Heart Center over a period of 9 months between 1-1-2019 to 2-10-2019

2.3 Aim of research

The research aims to describe the clinical characteristics of neurological complications in the immediate postoperative period of heart disease and to identify risk factors

2.4 Statistical analysis

1. Mean \pm SD.
2. Correlation.
3. P-value.
4. Test of ANOVA.
5. Comparison between parameters.

3. Result

Table 1- General characteristics of Preoperative patient characteristics.

P	Group Patient	Matched patient
Age	30 \pm 10.2	40.2 \pm 12.2
BMI	25.3 \pm 3.5	25.1 \pm 3.1

BSA	2.1±0.33	2.2±0.41
Renal Failure	25	15
Diabetes	20	13
hypertension high blood pressure	40	28

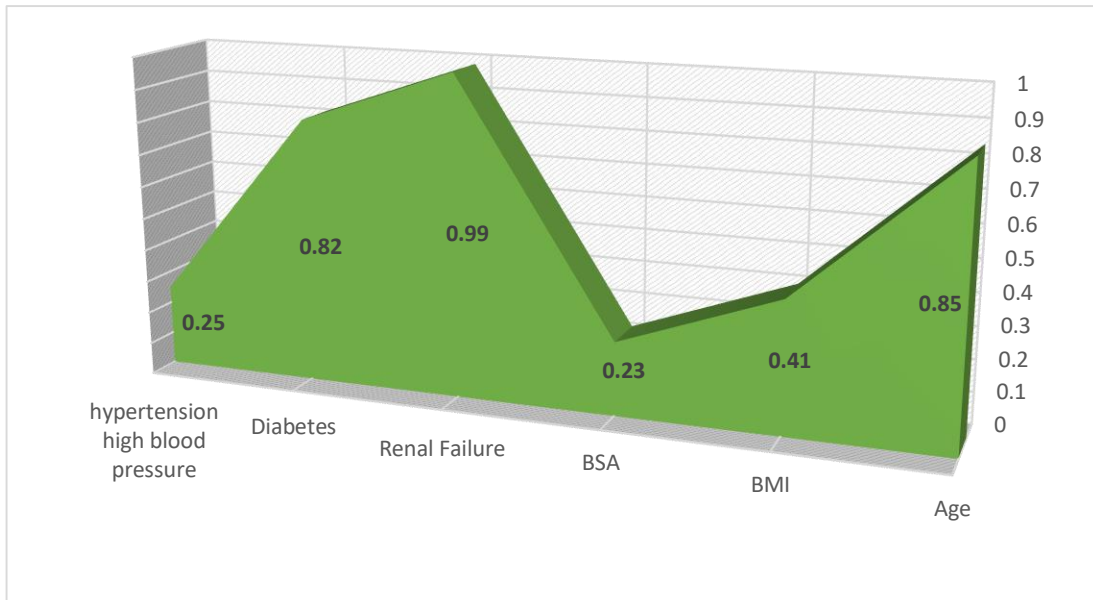


Figure 1- p-value for Preoperative characteristics.

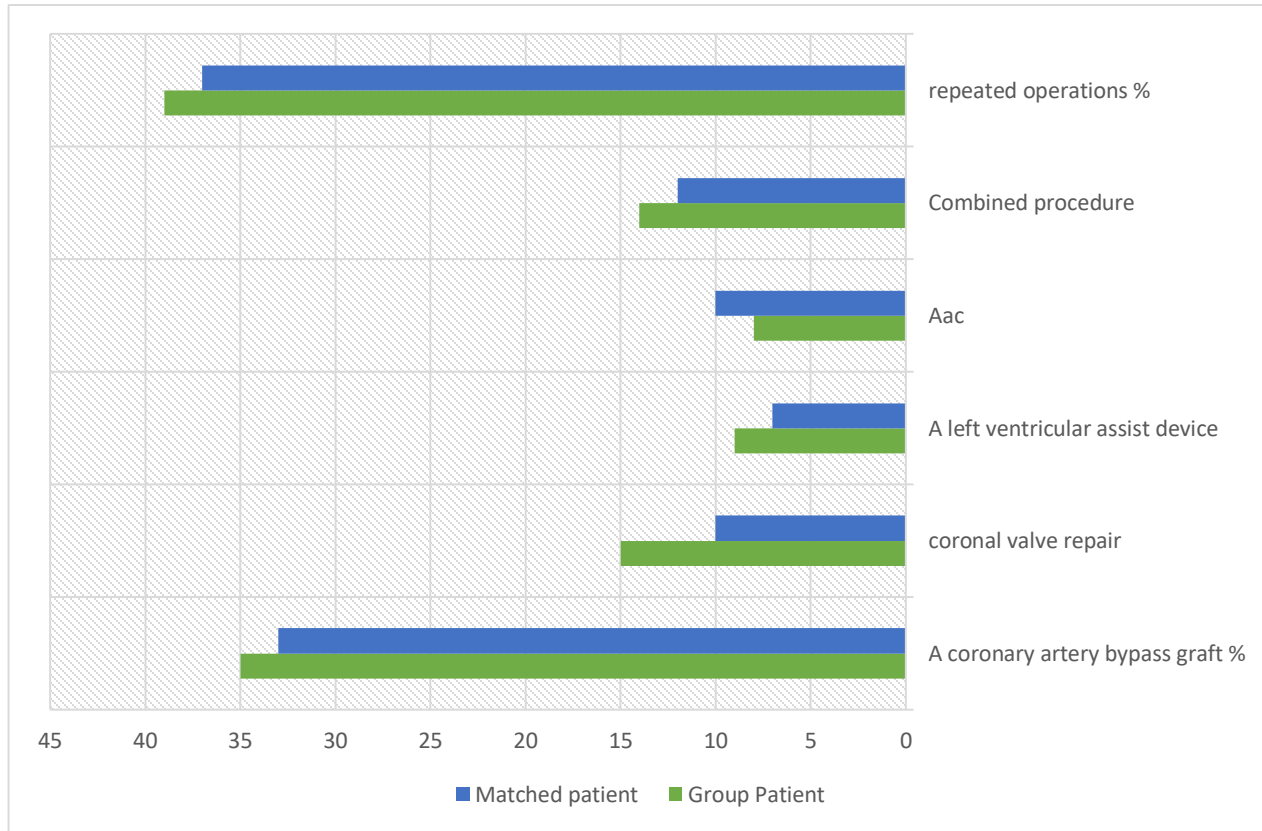


Figure 2 - characteristics of patients (Surgical Procedure).

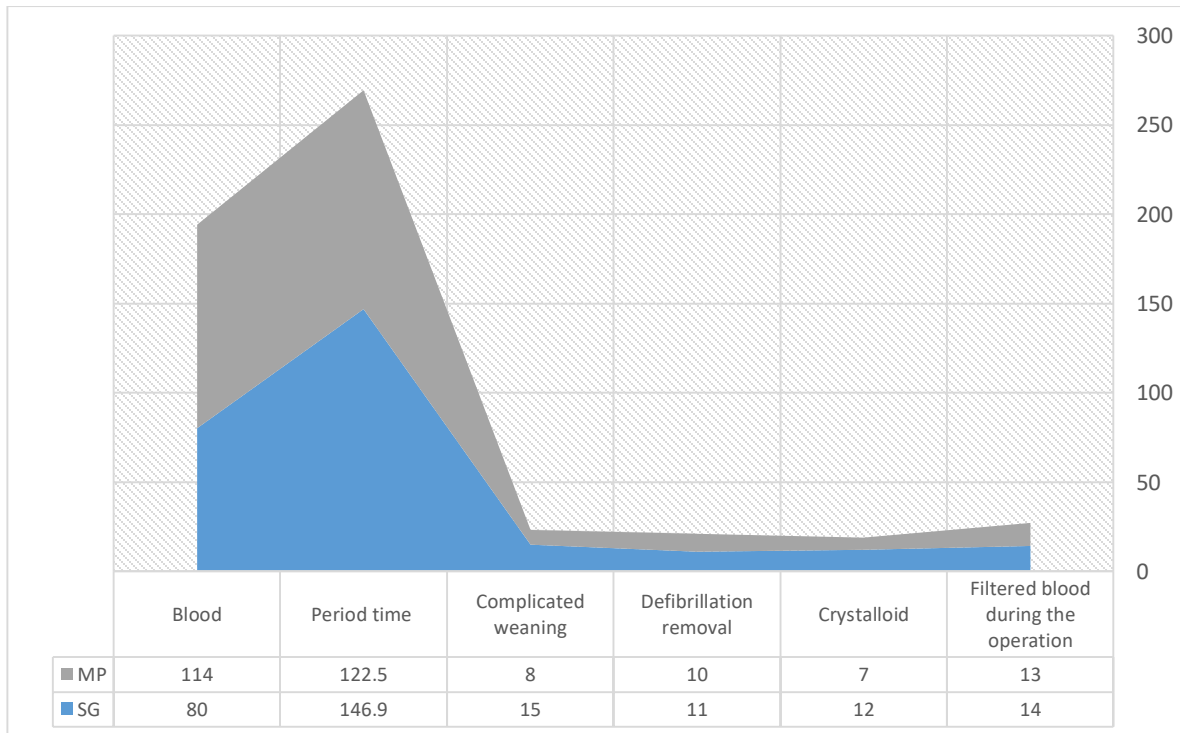


Figure 3 - explain results and analysis of the patient.

Table 2- the cadence of cardiac.

P	SG	MP
sinusitis	31	31
Nonsinusitis	29	9
Defibrillation removal at ablation	29	27
Period	149.3	137.5

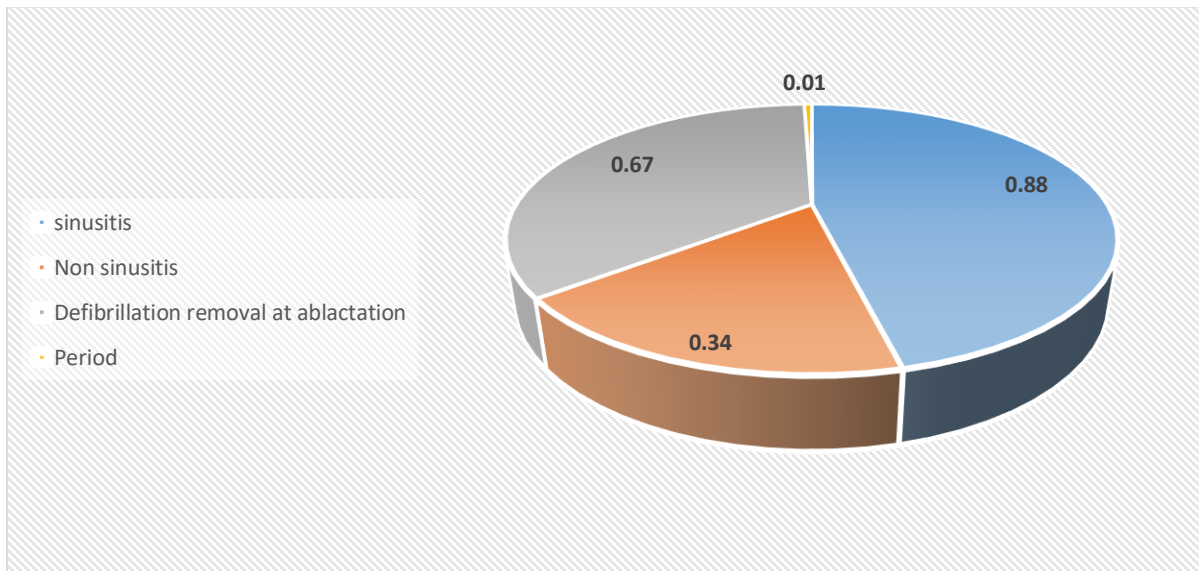


Figure 4- p-value cadence of cardiac.

Table 3 - explain results ICA of study group 60.

D	ICA SG	M- P
N	15	28
<50	25	5
50-69	8	4

≥70 but less than	7	2
Near occlusion	5	1

The samples taken for the examination were divided into two parts, and as was mentioned previously, work was done on MRI and CT, where MRI included 45 patients and CT 15, as shown in the figure below

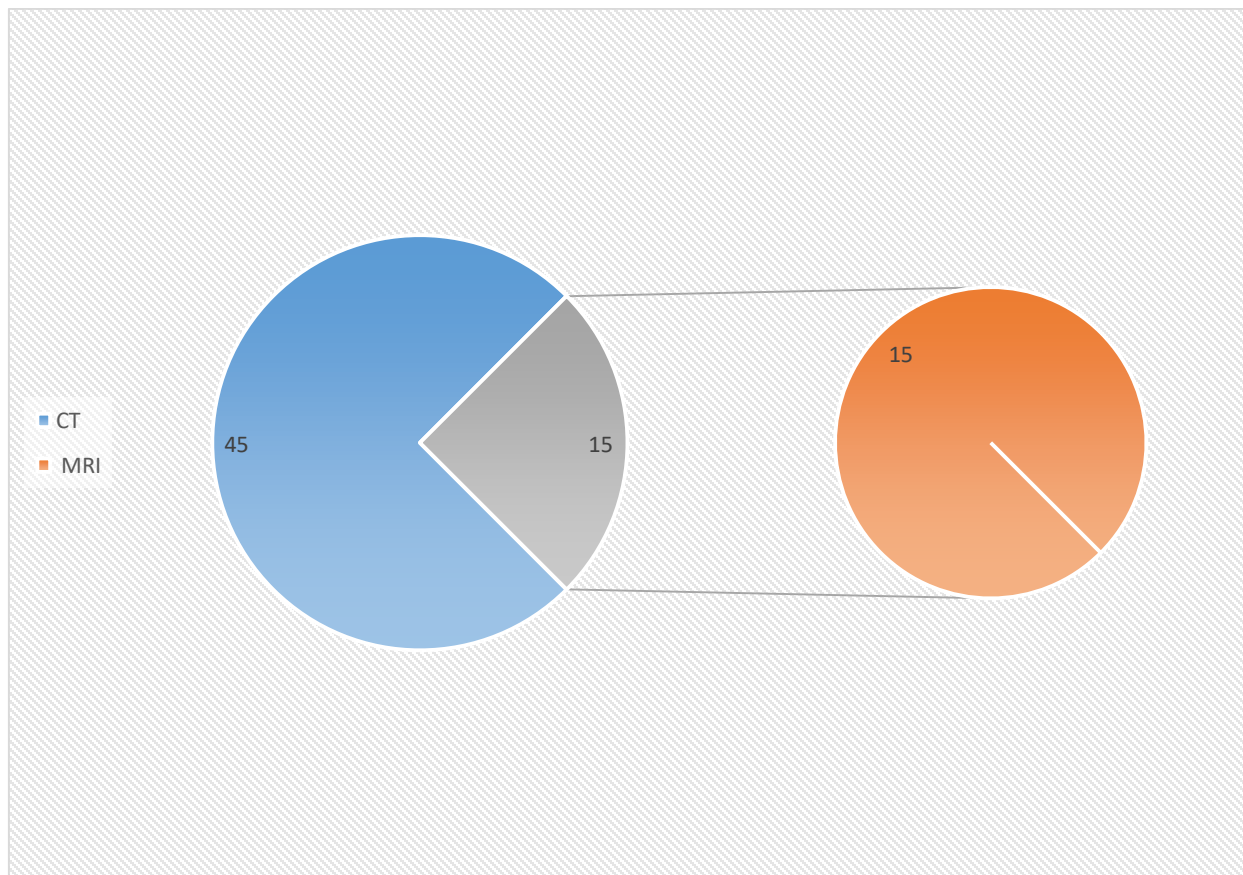
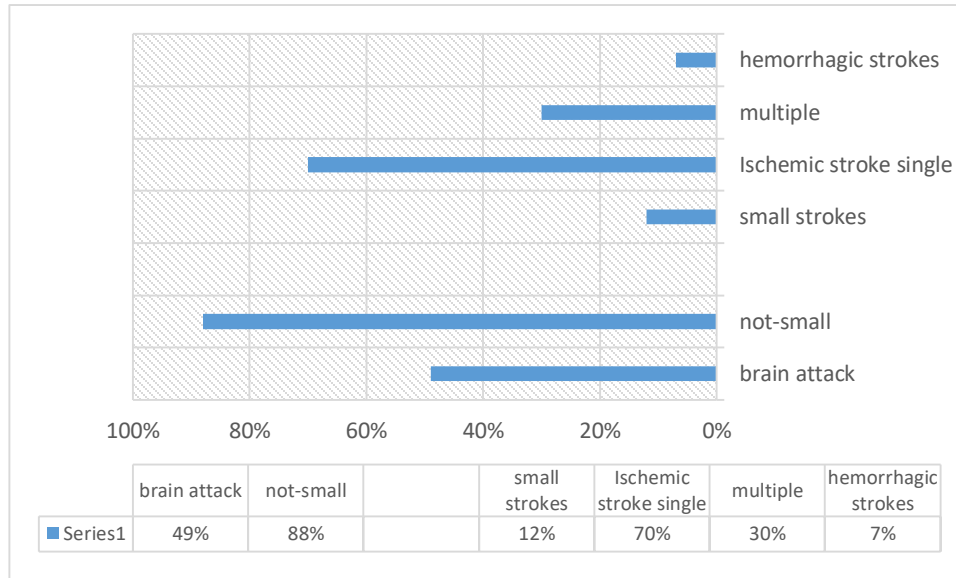


Figure 5- distribution of the sample.

Table 4 – the final result of the patient Shows the effect after surgery.



3.1 Correlation

Correlations			S-G	Control
Spearman's rho	S-G	Correlation Coefficient	1.000	-.011
		Sig. (2-tailed)	.	.663
		N	60	40
	C	Correlation Coefficient	-.011	1.000
		Sig. (2-tailed)	.663	.
		N	40	60

4. DISCUSSION

A stroke can occur after any surgery. However, the risk is greater if the patient is a smoker, is very obese, or is unable to move much (immobile). This is usually made up of. Sometimes clots can travel to the lung (pulmonary embolism), where they cause more serious and potentially life-threatening problems. Where it was noted from the results received that the ischemic stroke single by 70% and multiple stroke 30%. By conducting a statistical analysis to determine the impact of risks and the type of relationship that exists between surgery and the nervous system, we find that the type of relationship that exists is an inverse relationship if the control group is compared with patients, and this is what is indicated by the Correlation Coefficient - 0.11, and there is no statistically significant. TIAs are more common in middle-aged and older people, and TIAs differ from ischemic strokes in that the former does not cause permanent damage to the brain. For this reason, the symptoms of a transient ischemic attack recover fully and quickly.

People who experience sudden symptoms similar to those of a stroke should seek immediate medical attention, even if the symptoms resolve independently. These symptoms often indicate a transient ischemic attack. But other disorders, such as seizures, brain tumors, migraine headaches, and hypoglycemia, can cause similar symptoms, so additional testing is necessary to confirm the cause of the symptoms.

In order to determine if one of the arteries in the brain is blocked, other imaging tests can be used, as they can provide adequate results through images of the arteries that carry blood through the neck to the brain.

The study also determined the re-operation for several reasons, including considering it a risk factor that causes neurological complications, as the difficulties are the management of atherosclerotic vein grafts.

5. Conclusion

The differences in the frequency and structure of brain defects after surgery, as it was noted through the study that the increase in neurological complications from hospitalization and the increase in the number of deaths present. It often occurs in hospitals in patients with a heart surgery profile, and it is necessary to identify cardiac surgery patients at risk of stroke and carefully monitor their condition. Patients should receive stroke prevention in the early postoperative period.

6. Recommendation

1. The incidence of neurological complications in our study is similar to what was previously described as seizures and is the most common clinical manifestation.
2. Central nervous system complications are associated with increased morbidity, longer hospital stay, and increased resource consumption.
3. It is necessary to take measures in the preoperative and postoperative period, as well as during surgery, with the aim of prevention and early diagnosis.

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