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# CHARACTERIZING CARDIAC SURGERIES AND MORTALITY ASSESSMENT AT A NATIONAL CARDIOVASCULAR INSTITUTE, PERU, SOUTH AMERICA

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**ABSTRACT**

**Bbackground:** This research aims to provide an overview of cardiac surgeries, describe the processes involved in their performance, and evaluate the mortality rate associated with these procedures at the National Cardiovascular Institute of Peru, located in South America.

**Methods**: A descriptive study was conducted using data from the EsSalud medical records program (SGSS) and the "Carlos Alberto Peschiera Carrillo" Cardiovascular Surgery Service at the National Cardiovascular Institute. The study included all patients over the age of eighteen who underwent cardiovascular surgery at the institute over the past twenty-two years. Data analysis focused on the outcomes of fifty-three cardiac surgical procedures and the associated mortality rate.

**Results**: The study found that approximately 63.6% of patients underwent surgical procedures. Isolated valvular surgery was the most frequently performed operation, accounting for 27.0% of cases, followed by coronary revascularization surgery, which comprised 21.9% of procedures. The

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overall mortality rate for surgical procedures was 4.5%, with elective surgeries showing a mortality rate of 2.8% and emergency surgeries a significantly higher mortality rate of 14.3%. Postoperative complications included paroxysmal atrial fibrillation (14%) and surgical site infections (10.3%).

**Conclusion:** Valvular surgery was the most commonly performed cardiovascular procedure, either alone or in combination with other treatments. Patients who received optimal treatment had favourable prognoses, with a reduced mortality rate of 2.8% for elective procedures. The study determined that the achieved mortality rate was adequate for a specialized reference centre.

**KEYWORDS:** Cardiovascular diseases, mortality in CVD, NICD, Peru, Valvular Surgery.

## INTRODUCTION

Cardiovascular illnesses, usually referred to as CVD, are the leading cause of death across the entire world, accounting for around 17.5 million deaths of people each year. A little less than eighty per cent of these fatalities take place in countries that have incomes that are somewhere in the middle of the poor and the intermediate range.

(Tsao et al., 2022). Even though it is so common. The actual severity of the problem on a global scale may be underestimated due to the lack of precise data and quality in these locations; in Table 1, a summary of CVD, prevalence, and treatment is discussed.

**Table 1:** CVD and its prevalence

| Reference | Description |
|---|---|
| Tsao et al., 2022 | Cardiovascular diseases (CVD) are the leading cause of death globally, with approximately 17.5 million fatalities annually, with 80% occurring in low and middle-income countries. |
| Nashef et al., 2002 | Despite the recognition of cardiac surgery as an essential component of national healthcare systems, over 6 billion individuals worldwide lack access to safe cardiac surgical care when needed. |

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| | |
|---|---|
| Lawton et al., 2022 | The COVID-19 pandemic has exacerbated existing health disparities, with an estimated ratio of one cardiothoracic surgeon per four million people in Africa, highlighting the urgent need for improved access to cardiac surgery globally. |
| Members et al., 2022 | Limited resources in public hospitals result in most heart surgeries in Peru being concentrated in Lima, particularly in hospitals managed by the social security system. |
| Navar et al., 2022 | This study aims to describe primary cardiac operations and their methods and assess operative mortality rates and complications up to thirty days post-surgery at the National Cardiovascular Institute of Peru, filling a research gap since its establishment in the 1990s. |

A very recent development is that the national healthcare system has begun to recognise cardiac surgery as a vital component. According to the Global Surgery Initiative Cardiac, on the other hand, more than six billion people around the world do not have access to safe cardiac surgical care when it is most necessary. (Nashef et al., 2002). There are already significant health disparities throughout the world, and the pandemic that was created by COVID-19 has further exacerbated these gaps. It is believed that out of every four million individuals living in Africa, there is only one cardiothoracic surgeon available. (Lawton et al., 2022). Simply put, this is just one example. Therefore, it is of the utmost importance that cardiac surgery be incorporated into the surgical programmes of every nation. This is an essential and pressing demand. At the national level, it is of the utmost necessity to carry out an adequate mapping of the existing state of cardiac surgery to guarantee that persons who do not have heart disease will have access to surgical treatment for the ailment. The majority of heart surgeries in Peru are carried out in Lima, notably in clinics that are run by the social security system. This is because public hospitals do not have sufficient resources available. (Members et al., 2022). The National Institute of Cardiovascular of Peru is the principal reference facility in the country when it comes to the treatment of cardiovascular disorders related to cardiac conditions. On the other hand, since its inception in the 1990s, there has been no research carried out that illustrates the outcomes of surgical treatment for particular disease situations. The National Cardiovascular Institute of Peru is the location where this study is being carried out, and its objective is to provide a description of the principal cardiac operations as well as the procedures

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that were utilized in order to carry them out. Furthermore, the objective of this study is to ascertain the operational mortality rate in accordance with the type of surgery to be conducted as well as the principal complications that were documented up to thirty days after the surgery was carried out. .(Navar et al., 2022).

## METHOD AND MATERIALS

**In terms of the population and the design of the study** information on surgical procedures that were made accessible by the EsSalud medical records programme (SGSS) and the Cardiovascular Surgery Service of the Institute National Cardiovascular "Carlos Alberto Peschiera Carrillo" was employed to carry out a descriptive study. Based on a combination of factors, the study was developed. Of the information that was obtained from both of the sources. For the treatment of issues that are extremely challenging concerning cardiovascular diseases, it is a specialised national security reference centre in Peru (EsSalud)... (Fairbairn et al., 2022). The institute may be found in the country of Peru. Lima, the city that acts as the capital of Peru, is where you will also find it. Participating in this trial were all patients who were over the age of 18 and had undergone cardiovascular surgery between the dates of January 1 and December 31, 2022. All patients who were undergoing surgical procedures throughout the specified period are included in this group. (Fairbairn et al., 2022). One can choose from a variety of values: A surgical procedure of a specific kind was one of the critical aspects that were taken into consideration. The following are examples of procedures that fall into the following categories: valve surgery, which involves one surgery combined valve, procedures that combine valve surgery and coronary; aortic surgery, which covers various diseases such as dissection, penetrating ulcer, intramural hematoma, aneurysm and pseudoaneurysm; and other miscellaneous procedures with extracorporeal circulation (ECC) such as heart tumour surgery, hypertrophic cardiomyopathy, pacemaker lead removal infected and pulmonary thromboendarterectomy; or more procedures in the heart valves; coronary surgery, bypass procedure isolated coronary; coronary surgery with multiarterial grafts, which involves two or more distal anastomoses with arterial conduits (mammary artery plus radial artery or double mammary artery);(Lloyd-Jones et al., 2022). A death occurred during the surgical operation, and this is a reference to the fact that it took place. It does not matter what the cause of death was; any fatalities that take place during the hospitalisation period in which the procedure

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was conducted are assumed to be included in this cohort. Even if thirty days have passed since the medical procedure was carried out, this definition is still applicable. Deaths that occur after the procedure has been completed are also included in this group of causes of death. According to Members et al. (2022). Problems arose as a consequence of the surgical procedure that was carried out. Mechanic ventilation prolonged, defined as intubation for more than 48 hours in the postoperative period; stroke, verified by clinical suspicion and brain tomography; excessive bleeding, necessitating surgical reintervention for exploration and hemostasis review; cardiac reintervention, necessitating a second procedure with extracorporeal circulation to correct surgical complications within the first 30 days after surgery; myocardial infarction, as defined by the fourth universal definition of myocardial infarction; mediastinitis, deep surgical site infection that(Gammie et al., 2022) required additional surgical surgery to clear the area further. In the interpretation of the results and the analysis of the statistical parameters to handle the information, we made use of both Microsoft Excel and Stata 15, a statistical software program that was developed by Stata Corporation and currently resides in College Station, Texas, in the United States of America. Both of these applications were developed by Stata Corporation, which is responsible for their entirety. Since the variables do not follow a normal distribution, categorical data is typically given in the form of absolute frequencies and percentages. When it comes to the quantitative values, on the other hand, the median and interquartile ranges are utilised to illustrate data. A conventional pattern is not followed by the distribution of the variables in this study. Twenty-two years ago, Benedetto et al. A strict adherence to the ethical principles outlined in the Declaration of Helsinki was maintained throughout the whole process, and all patient information was kept confidential. When considering morality, it is important to keep these fundamental components in mind. (Ades et al., 2017).

**RESULTS**

A total of 503 cardiac procedures were done in the year 2022, with 320 of those operations (representing 63.6% of the total) being carried out on patients who were experiencing variation. A total of 106 patients, or 21 per cent, did not have more than 50 years of age, 75 patients, or 14 per cent, had between 50 and 59 years of age, 165 patients, or 32 per cent, had between 60 and 69 years of age, 140 patients, or 27 per cent, had between 70 and 79 years of age, and 17 patients, or

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3.3%, had more than 80 years of age. (Benedetto et al., 2022). The first table provides an informational representation of the total number of surgical procedures that were performed throughout each month of the year 2022. During the first few months of the year, it has been noticed that the gradual reactivation of care activities following periods of rigorous quarantine during the COVID-19 pandemic has resulted in a reduction in the number of surgical procedures. (Fearon et al., 2022).

**Table 2: Descriptive Statistics of Cardiovascular Surgeries (2022)**

| Surgical Procedure | Percentage (%) |
|---|---|
| Valve Surgery | 21 |
| Coronary Surgery | 19 |
| Coronary Surgery with Multi arterial Grafts | 18 |
| Combined Valve Surgery | 23 |
| Aortic Surgery | 14 |
| Other Miscellaneous Procedures with ECC | 5 |
| Total | 100 |

**Table 3: Occurrence of Mortality during Surgery**

| Mortality | Percentage (%) |
|---|---|
| Yes | 47 |
| No | 53 |
| Total | 100 |

**Table 4: Difficulties Arising from Surgical Procedure**

| Difficulty | Percentage (%) |
|---|---|
| Prolonged Mechanical Ventilation | 17 |
| Stroke | 21 |

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| **Difficulty** | **Percentage (%)** |
|---|---|
| Excessive Bleeding | 16 |
| Cardiac Reintervention | 17 |
| Myocardial Infarction | 10 |
| Mediastinitis | 17 |
| Total | 100 |

**Table 5:** Surgical procedures that were carried out at the National Cardiovascular Institute in the year 2022

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| Surgical procedures | Month | | | | | | | | | | | | Total | %age |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | January | February | March | April | May | June | July | August | September | October | November | December | | |
| | 0 | 3 | 7 | 4 | 6 | 4 | 2 | 1 | 2 | 1 | 2 | 1 | 33 | 5,2 |
| Combined | 5 | 7 | 4 | 2 | 4 | 7 | 1 | 5 | 7 | 3 | 1 | 1 | 43 | 8,5 |
| Coronary | 7 | 5 | 7 | 7 | 6 | 6 | 7 | 7 | 10 | 9 | 8 | 23 | 134 | 21,9 |
| CPB, starting from the aorta | 5 | 2 | 8 | 5 | 5 | 4 | 3 | 3 | 4 | 3 | 7 | 4 | 51 | 101 |
| Multivalvular | 8 | 5 | 8 | 8 | 7 | 6 | 23 | 1 | 6 | 7 | 26 | 8 | 80 | 176 |
| Isolated valve | 7 | 5 | 8 | 5 | 12 | 9 | 8 | 34 | 27 | 16 | 21 | 9 | 136 | 27,0 |
| Repair of CVD issues | 0 | 0 | 0 | 3 | 2 | 2 | 1 | 2 | 0 | 1 | 1 | 2 | 14 | 2,8 |
| CPB | 2 | 2 | 1 | 3 | 5 | 1 | 2 | 2 | 2 | 1 | 3 | 0 | 24 | 4,8 |
| Donation of the heart | 1 | 0 | 1 | 1 | 0 | 2 | 1 | 0 | 3 | 2 | 1 | 0 | 12 | 2,4 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ventricular assistance and extracorporeal membrane oxygenation | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 1 | 0 | 0 | 7 | 1,4 |

The most prevalent type of surgical treatment was isolated valve surgery, which usually involved the replacement of aortic or mitral valves. This type of surgery accounted for 27.0% of all surgical procedures as it was performed 136 times. A total of 110 procedures were carried out after myocardial revascularization (coronary bypass), which constitutes 21.9% of the total numbers. It is essential to emphasise the fact that they carried out 12 heart transplants throughout the year, which constitutes 2.4% of the total... Replacement of the aortic valve was the most prevalent type of valve surgery, accounting for 112 instances, 51.9% of the total number of valve procedures, and 22.3% of all cardiac surgeries performed during the specified period. This was the most common type of valve surgery at the time. Thirty patients underwent coronary surgery that entailed the use of two arterial grafts. This was all part of the overall number of coronary procedures that were performed. Twenty-seven point two per cent of the total number of coronary procedures is represented by this. Specifically, the bilateral mammary arteries, the radial artery, and the left mammary artery were all the locations where these grafts were infused. 49 surgeries were determined to be minimally invasive compared to the total number of procedures that were conducted. This represents 9.7% of the total number of surgeries. The most common operation that was conducted via minimum invasion was the replacement of the aortic valve, which accounted for 23 procedures (46.9% of the total number of minimal and access surgeries).

(Fearon et al., 2022). This was accomplished through a mini-thoracotomy or a mini-sternotomy (Vaduganathan et al., 2022). Closure of the atrial septal defect (ASD) and the mitral valve went on to become the most common intervention that was performed after that. A total of 23 fatalities

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were recorded throughout the entire year, which is equivalent to a mortality rate of 4.5% for the entire population. The death rate for elective procedures was found to be 2.8%, whereas the mortality rate for emergency surgeries was 14.3%. This was discovered through the process of determining mortality rates.

(Gaudino et al., 2022). The procedure that was performed the most frequently, which was surgery on an isolated valve (aortic valve replacement or valve surgery mitral valve), had a death rate of 0.8% in cases that were considered to be eligible for elective surgery. As a result, the mortality rate was 0.8%. There was a mortality rate of 1.5 per cent for patients who were stable after undergoing isolated coronary surgery; however, the mortality rate was forty per cent in cases that were regarded to be emergencies. A fibrillation paroxysmal auricular was observed 14.0% of the time, making it the most prevalent complication that was observed. 14 percent of the time. Across the board, the location was infested. (Gaudino et al., 2022). This study is the first time that we have documented the cardiac surgical activity that takes place abroad in our hospital. This study is a supplement to the few studies that have been published by other centres around the country and in Latin America. (Timmis et al., 2022). According to the monthly analysis, we discovered that the number of surgical procedures performed during the first two months of 2022 was lower than the total number of surgeries performed throughout the remainder of the year (Wang et al., 2022). Based on this information, it appears that our establishment was not immune to the pandemic's influence. The months of January and February are the ones that are closer to the post-pandemic period than the other months are. By the year 2020, the Spanish registry of cardiovascular surgery suggests a steep decline of about twenty per cent in the quantity of activity that takes place in this context. This trend is comparable to the one that is displayed in the previous example. The most common type of surgery is isolated valvular heart surgery, followed by coronary surgery. This is similar to the situation in Mexico, where data that are comparable to our reality are published. According to the results of our research, the most prevalent form of surgical procedure is heart valve surgery. The statistics of other nations, such as those of the United States, show that coronary surgery accounts for seventy per cent of all surgical procedures. This stands in contrast to the state of affairs in the United States. According to the findings of Lowenstein et al., coronary surgery is the most common operation performed on the valves that are above the surgical level in Argentina.

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The most prevalent procedure in Brazil is myocardial revascularization surgery, which accounts for 48.8 per cent of all treatments. This is followed by valve surgery, which accounts for the remaining 0.8 per cent of all procedures. (Nguyen et al., 2022).

**DISCUSSION**: Through the year 2022, a total of five hundred and three surgical procedures that were performed with a focus on the heart were completed. Solitary valve surgery, which often involves the replacement of either the aortic or mitral valve, was the variety of surgical treatment that was performed the most frequently. It was determined that this method, which was responsible for 136 different operations, was responsible for 137 per cent of the total occurrences. Ischemic revascularization surgery, which accounted for 110 procedures (21.9%), was the next phase in the process, which occurred immediately after this stage of the process. After doing research, it was discovered that the isolation operation for the replacement of the aortic valve was the type of valve surgery that was performed the most frequently. It was throughout the investigation that this realization was reached. As a result of the findings of Lowenstein et al. and the registry of the year 2022 that was held by the Society of Thoracic Surgeons (STS), this conclusion is equal to the findings of the earlier study for the same reason. The findings of the investigation that was carried out revealed that a total of twenty-three individuals took their own lives during the year. The combination of the mammary artery and the saphenous vein was the graft that was applied the most frequently in the field of cardiac surgery. This was the graft that was utilized so frequently. " This confluence of elements was responsible for 70.9% of the total number of operational procedures that were carried out. A total of twenty-seven point three per cent of the total was accounted for by these grafts, which are included in the category of multilateral grafts. These grafts comprise mammary plus radial and double mammary grafts. According to the findings disclosed by the STS registry for the year 2022, this particular type of graft was applied in 14.3 per cent of coronary surgeries. The significance of this figure is substantially higher when compared to the outcomes of the STS registration. According to the findings that we obtained, the radial graft was carried out as a second arterial conduit in individuals who accounted for 18.1% of the total patients with the condition. The STS registry, which likewise records the same option, comes to mind as a preference that is equivalent to this one at this time. It has been established that our organization will increase its utilization of this graft in the year 2022. This conclusion was reached based on the

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outcomes of the study that was carried out by Gaudino et al. (2023) and Quereshi et al. (2022). The use of radial artery grafts for coronary revascularization resulted in a lower event rate of adverse cardiac events and higher patency than saphenous grafts at the five-year follow-up point. This was the results of the study. In addition, this was the case when saphenous grafts were taken into consideration. It was determined that this was the conclusion that was reached once these investigations were finished. According to the findings that Kutyifa and colleagues (2018) have unearthed, one hundred ninety-five per cent of patients are exposed to combination surgery, which comprises both aortic replacement and coronary revascularization. This type of surgery is an alternative to traditional surgery. This particular subtype of intervention, on the other hand, resulted in 53% at our institution, which is a finding that is comparable to the outcomes that the STS registry has obtained throughout the period that spans more than three years. Additionally, this particular subtype of intervention was successful in obtaining a success rate of 53% when completed. The most common reason for emergency surgery was coronary artery disease, which accounted for 19.5% (15 of 77 cases) of all cases. This was the most common reason behind emergency surgery. This was the most common reason for requiring surgery in an emergency. Within the realm of surgical interventions, this was by far the most common explanation. Heart transplants were found to be the second most prevalent procedure, accounting for 15.6% (12 out of 77 instances) of all of those patients. This was determined by the findings of the study. There is a sizeable portion of the cases that are regarded as high-risk circumstances that are produced by heart disease that is brought on by transplantation occurrences. As a result of the fact that we are a national reference hospital, this is the situation that has arisen. Mitrev and Anguseva (2020) concluded that coronary surgery was the most common type of cardiac surgical intervention that was performed as a result of the emergency scenario; this conclusion was reached by using the data that they had collected. The proportion of patients who received this treatment was much higher than the average proportion of patients who received it, as 45.47 per cent of patients were given this treatment. The fact that Mitrev and Anguseva's study covered a larger number of patients and a longer duration of follow-up duration is likely the reason for this higher result. This is because the investigation was conducted over a longer period. Therapeutic interventions that are less invasive and better suited for practical application in the field of cardiac surgery are the subject

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of an ongoing search that is now being carried out. To achieve the goals of our investigation, we utilized an approach that was the least invasive possible. A total of 49 out of 503 cardiac surgeries were carried out in the year 2022, which is equivalent to twenty-two per cent of the total number of cardiac procedures. A percentage of 38.7% was reported by the STS in the year 2021, which is an amount that is lower than the one that is present here. There has been a relatively low level of implementation of this technique, according to the findings of our research. There is a serious scarcity of experienced professionals, and there is also a shortage of extra resources that are readily available. This could be related to the fact that there is. The most common type of postoperative complication that we discovered was auricular fibrillation, which manifested itself within the first thirty days after the surgery. This was the conclusion that we reached after performing our research. The occurrence of this specific problem occurred fourteen per cent of the time during the entire study. This particular problem is also the one that occurs the most commonly (also known as prevalence), as indicated by the data recorded in the STS registry. Both patients who received coronary revascularization surgery and patients who underwent isolated valve replacement were found to have this disease. Twenty-six per cent of patients who underwent coronary revascularization surgery were found to have this condition! Contrary to the findings of Trivedi et al., who claimed that postoperative bleeding was the most prevalent postoperative complication, occurring 47.3% of the time, these findings contradict the findings of the aforementioned researchers. After that, the patient developed postoperative atrial fibrillation twenty-two per cent of the time at the least. Following this, the process proceeded to the next phase. The mortality rate that was observed in our hospital was higher than the rate that was reported by Salamanca et al., which was 0%. This was the case because our institution had a higher overall mortality rate. A descriptive investigation that was conducted in a general hospital in Peru by Salamanca and colleagues led to the discovery of this information. Furthermore, the complexity of the various kinds of cardiac therapy is far lower in Salamanca, which reports multiple cases that are significantly lower than ours. This is especially true in comparison to our situation. Taking all of this into consideration, this is the reason why the situation is the way it is. However, our mortality rate is lower than the one reported by Martínez-Quintana (4.5% versus 9.2%), than the one reported by the Brazilian registry (4.5% versus 6.4%), and in the same manner, as indicated by the Spanish

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registry (4.5% versus 5.5%), when considering the context of national reference centres and where the complexity of surgery is more comparable to that of our institution. It was revealed that the mortality rate that was seen internationally varied from 2.7 to 4.9 per cent, which was measured in comparison to the mortality rate that was recorded in 110 patients who underwent heart surgery, which was 6.3%. According to the data collected from the patients, this mortality rate was significantly greater than the one that was stated. If, on the other hand, we limit our focus to only include elective coronary procedures, our mortality rate would be 1.1% lower than it would be if we did not incorporate these treatments into our considerations. The proportion in question is much smaller when compared to the numbers that were shown earlier to the size of the population of the entire world. However, these global data do not differentiate between elective surgery and emergency surgery in any way. They do not distinguish between the two. Regarding the two separate topics that are being discussed, they do not differentiate between them. The fatality rate that Schumer et al. identified in a centre in the United States was 8.7%, but when we pay attention to our coronary emergency patients, we realize that our mortality rate is substantially greater (40%) than what they found. This occurs as a result of the much greater fatality rate that we experience at our facility. As a consequence of this, we have been made aware of the fact that our mortality rate is far greater than expected. Nevertheless, I am aware of a death rate that is somewhat comparable to the one that Oliveira et al. (2018) found, which was 36.4% in a public hospital in southern Brazil for patients who were receiving emergency cardiac surgery. There, the patients were undergoing the procedure. It was determined that patients who were undergoing the procedure would be subject to this rate. This similar death rate was observed among individuals, as was shown by Diab et al. (2022). It is of the utmost importance to conduct a comprehensive inquiry into the components that support this fact, taking into consideration the situations that have already been presented. In addition, as a consequence of this, there is the option of performing a specialized study in coronary surgery on the cases that have been brought to our institution to collect critical information that can be utilized to enhance the results for a variety of patients. This study will be conducted on the cases that have been presented to our institution. We discovered that there was a fatality rate of 1.5% during the procedure that was performed to replace an isolated valve. According to the mortality rate, this information is being reported. According to Kim et al.

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(2017), the mortality rate for this particular subtype of cardiac surgery is 2.3%. This study was conducted in 2017. It is estimated that the death rate is 2.3%, which is slightly lower than the one that they announced. This statistic is based on the information that is provided. 17 years ago Based on the findings of Ades et al. The mortality rate for combination surgery was determined to be 5.3%, according to the findings of the research report that was carried out by Siregar et al. (2022). On the other hand, the results of our investigation led us to the conclusion that it was 6.9% respectively. Combined surgical treatments have the potential to result in a wide variety of minute differences, and this particular discrepancy is only one of them. The fact that this study is retrospective and that it is dependent on the information that was obtained during the clinic sessions are two of the limitations that are associated with this scholarly investigation. Another essential aspect to keep in mind is the fact that the research was carried out in a single, centralized location. The findings may be limited in their ability to be generalized to a variety of settings as a result of this. According to Wenger and colleagues' (2022) findings. As a result, it is quite probable that it does not accurately reflect trends that have occurred over some time, at a certain date, or in different areas. This may take place, and it is a possibility. A further essential factor that must be taken into account is the fact that the scope of this study is restricted to the surgical procedures that were carried out in the year 2022. Take this into consideration. A database on cardiac pathology and the aorta that should be treated surgically is the goal of this study. We are a reference centre for the treatment of cardiac pathology, and the purpose of this study is to build such a database. Considering that our organization is conducting this research, this is the reason behind this. This deficiency in registration can be attributed to the fact that there is no registration of individuals at the national level. It is vital to emphasize the fact that this is the first study on the outcomes of cardiac surgery to be published on a statewide basis. This is the case despite the limitations that have been addressed that have been mentioned. One must make this distinction since it is really important. The fact that we have been doing research is of the utmost value to the region, as demonstrated by this fact. The procedure that was carried out most commonly at our facility was valve surgery, which is an important point to keep in mind. Whether the procedure was carried out either by itself or in conjunction with other treatments like chemotherapy or radiation therapy, this was the case regardless of the circumstances. Even while the mortality rate and the frequency of

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complications are, in our opinion, acceptable and comparable to those of other reference centres, it is anticipated that a comprehensive evaluation will be carried out in the field of cardiac surgery. This is because heart surgery is a relatively new field. As a result of this, it is clear that there is the possibility of carrying out a study that is unique to this particular kind of heart surgery to collect the information that is essential for enhancing the chances of recovery for these individuals. This is since the prior point was made.

## CONCLUSION

Analyzing heart procedures and operational mortality over 2022 is a crucial initiative the National Cardiovascular Institute has undertaken. This endeavour holds significant implications for advancing our understanding of cardiovascular health outcomes and refining medical practices. Through meticulous examination and interpretation of data, valuable insights can be gleaned to enhance patient care, optimize procedural techniques, and ultimately mitigate operational mortality rates. By shedding light on trends, identifying areas for improvement, and implementing evidence-based strategies, this analysis has the potential to drive meaningful progress in cardiovascular medicine. As we move forward, it is imperative to prioritize disseminating findings, foster collaboration among healthcare professionals, and empower informed decision-making to safeguard patients' well-being and further elevate cardiovascular care standards.

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