

ORIGINAL ARTICLE

CARDIAC SURGERY IN BIRGUNJ: EARLY EXPERIENCE

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**ABSTRACT****Introduction:** Cardio-vascular diseases are growing up in developing countries and they are the leading cause of deaths in the world, especially in low- and middle-income population. Various procedure were included such as open thoracotomy, CABG, Mitral valve repair aortic valve repair, however we aimed to study difficulties in performing cardiac surgery and complication related to cardiac surgery.**Materials and Methods:** This retrospective study was carried out in Department of Surgery of National Medical College and Teaching Hospital, Birgunj, Parsa, Nepal. A total of 18 patients were included over period of 2019 to 2022 in this study. History and detailed clinical examination was performed as per the working proforma. Data analysis was done using SPSS (Statistical Package for social sciences), version 25.**Result:** Most of Coronary heart disease was seen in 40-59 years of age group with mean age of 48.2 years. A total of 83% patients were male. Triple vessel disease was the most common diagnosis (38.3% patients). Coronary artery bypass surgery (CABG) was most common surgery performed. 44.4% of patient develops complication out of which mortality occurred in 11.11% of patient.**Conclusion:** To conclude, elective cardiac surgery is challenge in center like ours. Coronary heart disease (Triple vessels disease) was the most common indication of surgery.**Keywords:** CABG, Coronary heart disease, Triple vessel disease.**INTRODUCTION**

Cardiac surgery is done either by opening sternum or through thoracotomy. With advancement of minimal invasive surgery, now at developed center, robotic cardiac surgery is being done. Cardiac surgery includes CABG, valve (mitral/aortic or both), congenital disease surgery (e.g. arterial septal defect, ventricular septal defect), aortic root surgery etc. Most of cardiac surgery is done on heart lung machine (on pump) with few exceptions such Off Pump CABG. In On Pump surgery, blood is passed to heart lung machine where it gets originated and again return to aorta through circuits.¹⁻³

Cardiac surgeries are difficult to perform outside

Kathmandu valley due to high cost, lack of knowledge about the disease among people, difficult to find trained man power and logistic problem.^{4,5} With advancement in department of cardiology and start of Cardiac Catheterization laboratory, Cardiac surgery program at National Medical College, Birgunj Nepal was started in 2018 and first cardiac surgery was performed in 2019. The aim of this study was to share our experience in cardiac surgery at our center.

MATERIAL AND METHODS

The retrospective study was carried out in Department of Surgery, National Medical College and Teaching Hospital,

Birgunj, over period of 3 years from 2019 to 2022. Ethical clearance was obtained from the Institutional Review Committee (IRC) of NMC (Ref No: F-NMC/587/078-079).

The data were collected from the records available in the record section of the hospital. We evaluated the distribution of age and sex, diagnosis, and complications of the surgery, and mortality among the cases. The data were entered in Microsoft Excel 2016. Data analysis was done using the Statistical Package for the Social Sciences (SPSS) version 25. The parameters were presented as mean \pm standard deviation. Categorical value was mentioned in numbers and percentage.

RESULT

A total of 18 patients were operated. The patients had a mean age of 48.22 ± 12.26 years. There were 12 (66.67%) males and 6 (33.33%) females with a male: female ratio of 2:1. The mean BMI of the cases was 26.8 ± 5.26 kg/m². Most of the patients had triple vessel disease (38.88%). Out of total 10 patients, all underwent CABG; 4 patients underwent mitral valve replacement and 3 patients underwent double valve replacement (Aortic and Mitral). All the operations were done on elective basis. The CABG group had a total of 2-3 grafts. Left internal mammary artery (LIMA) was used in all patients and other graft was taken from great saphenous vein.

Table 1: Age and gender wise distribution of cases

Age Group	Female (n=06)		Male (n=12)		Total (n=18)	
	No.	%	No.	%	No.	%
Below 20	01	16.66	00	00	01	5.55
20-39	01	16.66	01	8.33	02	11.11
40-59	03	50.00	10	83.33	13	72.22
Above 60	01	16.66	01	8.33	02	11.11

Table 2: Demographic data

Co-morbidity	Number (%)
Diabetes	5 (27.78)
Hypertension	9 (50)
Dyslipidemia	5 (27.78)
History of smoking	10 (55.56)
History of Alcohol	2 (11.11)

Table 3: Diagnosis wise distribution of case

Diagnosis	Number	Percentage (%)
Triple vessel disease	7	38.88
Double vessel disease	4	22.22
Severe MS	2	11.11
Severe MR	1	5.55
Severe MS with Moderate MR	2	11.11
MR MS AR AS	1	5.55
Severe AR Severe MS	1	5.55

MS – mitral stenosis, MR – mitral regurgitation, AS – aortic stenosis, AR – aortic regurgitation

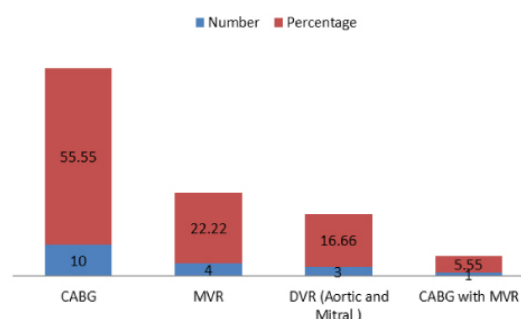


Figure 1: Bar diagram of surgery performed

Table 4: Complication

Complication	Number	Percentage (%)
Pre-operative CVA, huge clot in LA, had deep wound in infection, 6 & 7th rib removed	1	5.55
Pre-operative multiple pulmonary edema	1	5.55
Deep sternal wound infection	1	5.55
Post-operative acute hepatitis	1	5.55
Superficial surgical site infection	2	11.11
Death	2	11.11

DISCUSSION

Cardiothoracic surgery unit was established in Birgunj in the year 2018 and the first case was done in the year 2019. The history of cardiac surgery in Nepal goes back to the sixties. In 1963 Dr. D.N. Gongal performed first thoracotomy and the first mitral valvotomy in 1964.⁶ Prof. Dr. Govinda Sharma and Dr. Bhagwan Koirala started cardiac surgery in TUTH in 1995 AD. In 1997, VSD closure was done by Dr. Bhagwan Koirala and Dr. B.M. Singh in TUTH. First CABG operation was done by Dr. D.P. Pokharel in Bir Hospital on 4th Ashad 2057.⁶

The mean age of the cases that underwent cardiac surgery was 48.22 ± 12.26 years (18-60 years). Maximum cases were in the age group of 40-59 years (52% females and 72.22% males). Among the surgeries performed, CABG (55.55%) was the most common procedure. This was in accordance with other studies.⁷⁻⁹

Among the cases that underwent surgery, 55.56% had history of smoking and 50% had hypertension. The most common presentation was triple vessel disease (38.88%), followed by double vessel disease (22.22%). This findings were similar to other studies.⁷⁻⁹

Postoperative complication was seen in 33.33% cases and the mortality rate was 11.11%. The most common complication presented in our study was superficial surgical site infection seen in 11.11 % cases. The high rate of complication might be due to low case load in our study. It is a well known fact that long duration surgery are prone to wound infection and hence cardiac surgeries tend to yield more infection.^{10,11}

Cardiac surgery is costly. The setup of infrastructure and treatment is highly costly in any private sector. Our institution tries to give the service to the general population at a very minimal cost. Different governmental plans are in use but we have not as yet been part of it. We are trying to corroborate with the government and make the cardiac surgery more cost effective. We plan to give our optimum services to more people in near future.

CONCLUSION

To conclude, elective cardiac surgery is challenge in center like ours. Due to the cost of the treatment, very few private institutions have the facility for cardiac surgery. Beyond the hurdles, we have tried to provide service in this region, so people do not have to go elsewhere for the treatment.

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