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Research Article

### QUALITY OF LIFE AND OUTCOME AFTER RADIAL ARTERY USE IN CORONARY ARTERY BYPASS GRAFTING

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**Abstract:**

**Purpose:** The radial artery is used to supplement internal mammary arteries and vein grafts in coronary artery bypass grafting. This study was conducted to examine the early and mid-term results of a radial artery (RA) transplant in terms of quality of life.

**Material and Methods:** A retrospective descriptive study was conducted at the Punjab Institute of Cardiology Lahore. All patients who underwent coronary artery bypass grafting during this period were included in the study. Perioperative variables were recorded and the quality of life was assessed using the EuroQol 5D questionnaire.

**Results:** A total of 429 patients were operated on in that period. Radial artery was used in 185 patients, out of which 157 (84%) were males and 28(16%) were females. We performed off pump coronary artery bypass in 155(84%) patients and on pump coronary artery bypass in 30(16%) patients. Of the selected patients, 84 (45%) smoked, 81 (43%) had diabetes, and 104 (56%) had hypertension. Renal failure occurred in 4 (2.1%) off pump patients, while no patient with on pump reported renal failure. Wound infection affected 5 (3.22%) off pump patients and 1 (3.3%) with on pump patients. Only one patient with on pump (0.05%) experienced a 30-day mortality. In the middle of this period, patients expressed an opinion on the EuroQol study. Eighty-two percent followed the thirty-minute walk plan with a minimum distance of 1 km. Patients were aware of the concept of self-care because 99% regularly received medication. In addition, 83% of patients are painless.

**Conclusion:** The radial artery gives immediate acceptable results and increases quality of life in the mid-term. Further clearance studies are needed to assess coronary artery bypass graft.

**Keywords:** radial artery, coronary revascularization transplant, results.

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**INTRODUCTION:**

Coronary artery bypass graft (CABG) is the recommended treatment for many diseases, weak ejection fraction and coronary artery disease of the left torso among many other indications. Vein transplant failure (CABG) has become the Achilles' heel[1-3]. This failure forced surgeons to switch to total revascularization of the arteries with the help of the internal mammary artery, radial artery or gastroepiploic artery[4-6]. Arterial grafts are permanent and also provide protection by slowing down the natural progression of CAD in the inoculated vessel. RA showed longer survival. RA can withstand high blood pressure and there are no internal valves. RA and RITA have the same rates of morbidity and mortality in the perioperative or moderate period. The most common complications that occur after RA collection are skin paresthesia and a higher degree of atherosclerosis. Serious calcification or chronic excision from previous cannulation may exclude RA [7-8]. RA contraction is more intense and more difficult to return than IMA. Although CTRT (total coronary revascularization) is a suitable procedure for three-vessel disease, the main ailments are related to sternum complications. These complications are most commonly reported in patients with diabetes, obesity and pulmonary complications [9]. Total arterial revascularization has not yet gained popularity in Pakistan. At CABG, we present medium-term results of the radial artery in terms of morbidity and quality of life. This is the largest report of this type reported in Pakistan, as far as we know. This study will explain the feasibility of radial artery extraction in the Pakistani population and will pave the way for total arterial revascularization in Pakistan in the future.

**MATERIAL AND METHODS:**

A retrospective descriptive study was conducted at the Department of Cardiac Surgery Punjab Institute of Cardiology Lahore. A total of 429 patients underwent

CABG due to two or three vessel disease. The mean follow-up was 23.1 months. The average number of radial transplants was 1.14 per patient. Patient data were examined for hospital outcomes and quality of control life. Health-related quality of life was assessed using the EuroQol 5D questionnaire. Patients were examined by detailed telephone examinations. The study measures the overall health of the patient, taking into account 5 dimensions: mobility, personal hygiene, habitual action, pain and anxiety. Because there are three levels in each dimension: medium, medium or serious, we averaged each group to collect our results. A visual analog scale from 0 to 100 is also included in this study, where 0 represents poor health and 100 represents excellent health.

**SURGICAL TECHNIQUES:**

Prior to Allen's surgery, preoperative examination was performed prior to radial artery removal in each patient. If necessary, a Doppler test was performed. The radial artery was only used when more than 90% of the stenosis was found in the right coronary cell and more than 70% in the left coronary cell. The collection was carried out without tactile technique. RA was harvested with associated vessels. Recurrent RA was spared and considered the proximal landmark. The wound was closed by cutting technique. Postoperative nitrates were given to all patients immediately after surgery and 6 months after discharge.

**RESULTS:**

CABG was used in 429 patients due to double or triple vascular disease. We used the radial artery in 185 patients. 157 (84%) of the cohort are men, and 28 (16%) are women. We performed coronary artery bypass grafting without a pump in 155 patients (84%), and coronary artery bypass grafting with a pump in 30 (16%) patients. The mean follow-up was 23.1 months. The average number of radial transplants was 1.14 for each patient (Table 1).

**Table: 1 Demographic data of the patients**

<b>Total number of patient (n)</b>	429
<b>Radial artery as graft</b>	185 (43%)
<b>Male</b>	157 (84%)
<b>Female</b>	28 (16%)
<b>Average follow up months</b>	23.1
<b>Hypertension</b>	104 (56%)
<b>Diabetes</b>	81 (43%)
<b>Smoking</b>	84 (45%)

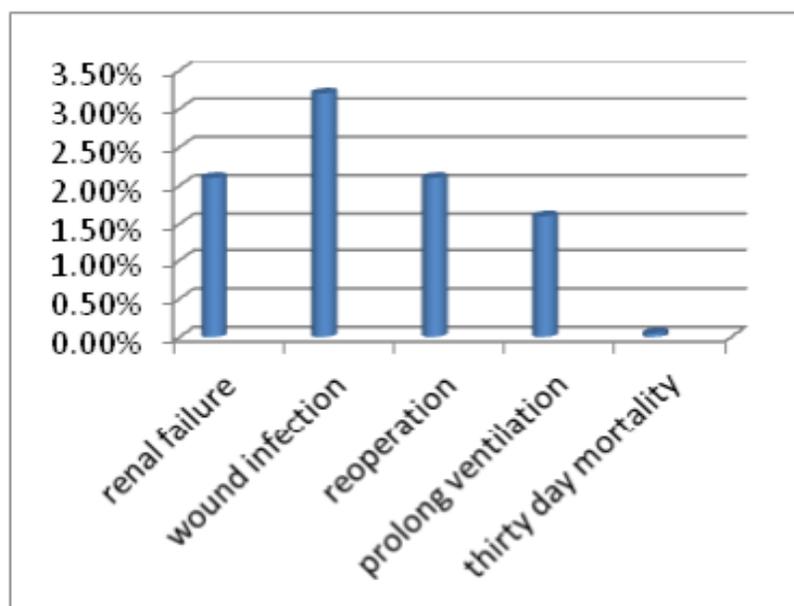
Eighty-eight (45%) patients in the study smoked cigarettes, 81 (43%) had diabetes and 104 (56%) had hypertension. Renal failure occurred in 4 (2.1%) off pump patients, while no patient with on pump reported renal failure. Wound infection affected 5 (3.22%) off

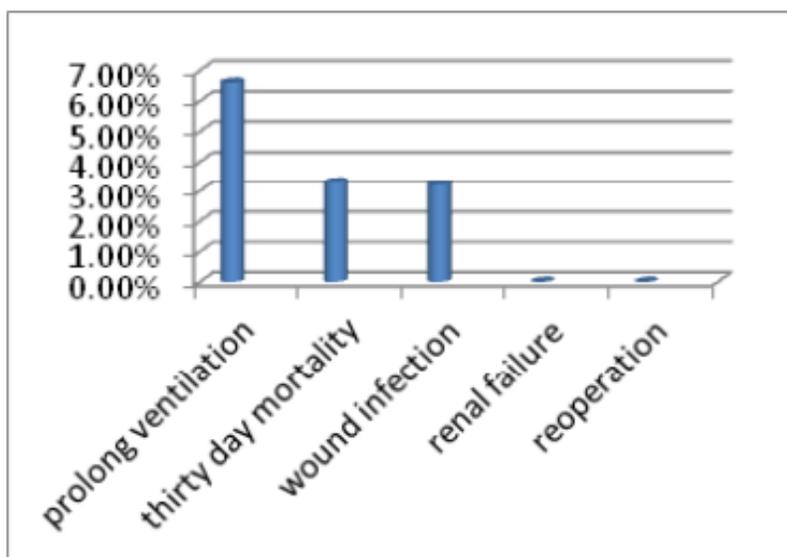
pump patients and 1 (3.3%) with on pump patients. Only one patient with on pump (0.05%) experienced a 30-day mortality. (Figures 1 and 2). 30-day mortality occurred in only one patient with on pump (3.3%) (Table 2).

Table: 2 Early outcomes in off-pump and on-pump patients

N= 185	Off pump 155 (84%)	On pump 30 (16%)
<b>Renal failure</b>	4 (2.1%)	0
<b>Deep sternal wound infection</b>	5 (3.22%)	1 (3.3%)
<b>Reoperation (for excessive bleeding)</b>	4 (2.1%)	0
<b>Prolonged ventilation</b>	1 (0.6%)	2 (6.6%)
<b>Mortality</b>		1 (3.3%)

**Fig. 1. Post-operative complications in off pump patients**



**Fig. 2: Post op complications in on pump patients**

According to the EuroQol 5D study, patients were asked for five parameters, such as mobility, personal hygiene, habits, pain and anxiety. No patient was in bed. Eighty-two percent followed the thirty-minute walk plan with a minimum distance of 1 km. Patients were aware of the concept of self-care because 99% regularly received medication. They ate a low-fat and low-fat healthy diet. They were good at personal hygiene. 82% of respondents still worked after CABG

surgery. In addition, 83% of patients are painless. 31 patients reported different types of pain. We assess your type of pain. Ten patients had pain not related to the cardiovascular system. While 21 had angina after CABG, 7 patients had severe angina, so we advised them to visit us as soon as possible. Most patients were satisfied and had no complaints about their health. They used their mental integrity. Only 18% had minor anxiety problems. (Table 3)

**Table 3: Euroqol 5D results**

Parameter	Results	Percentages
Mobility	155	81%
Self-care	183	99%
Usual activity	54	82%
Pain	31	17%
Anxiety	33	21%

**DISCUSSION:**

Transplant patency plays a key role in CABG's long-term success. Angiographic reports in various studies confirm that RA has excellent brightness in the short, medium or long term. Possati et al. Long-term angiographic patency of RA transplants has been described in 90 patients. It turned out that 88% of the aperture is smaller than LITA (96.3%), but better than SVG (53.4%). The RAPCO study is a two-level study comparing RA and RITA or biologically free SVG. In another study from Japan, Tanaka and colleagues found that the arterial ducts have an internal

mechanism that controls blood flow. In their study they did not observe hospital death or perioperative myocardial infarction. They concluded that the skeletal radial artery had excellent results.

Many studies have reported excellent clinical results using a strategy using one or both internal breast artery grafts and one or both radial artery grafts to ensure complete or nearly total arterial revascularization. Similarly, significant results such as death, reoperation and stent reoperation were more common in patients who had one patient rather than a bilateral ITA

transplant. Even if the population is selected for patient selection, sampling and observation time, the results are accurate. The popularity of RA is increasing very much. The use of RA in conjunction with LITA becomes apparent for complete arterial revascularization and preferred pump-free surgery to prevent aortic manipulation. The use of aortic connectors can be extended to RA transplants. Gene therapy and innovative pharmacological agents will further reduce RA contractions and make them more useful after LITA.

Our research clearly shows that the use of the radial artery as an additional transplant of the left internal thoracic artery and vein transplants does not cause morbidity in the perioperative period. Similarly, as the correct scoring system shows, the quality of life parameters in the medium term are also satisfactory. From this report it can be concluded that the RA collection is also satisfactory in terms of patient satisfaction and discomfort after scars. In addition, downloading is easier, and the lack of it on the shoulder, as shown in various studies, does not affect the blood circulation in the shoulder. RA transplant is a very effective coronary revascularization technique with promising short- and long-term results. Low reports of repeat surgery have been reported in several reports. RA permeability can be compared with LITA permeability. Our study suggests that RA transplants can be used effectively and efficiently in a maximum number of patients with exceptional short- and long-term results.

### CONCLUSION:

The radial artery gives immediate postoperative results and improves quality of life in the medium term. Further clearance studies are needed to assess coronary artery bypass graft.

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