

**Original article:**

## **Study of influence of age on coronary heart bypass surgery at tertiary care hospital**

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### **Abstract:**

**Objective:** The rise in the number of elderly people worldwide has led to a dramatic increase in patients over the age of 50 who need surgery for heart disease. The purpose of the study is to assess the impact of age on postoperative outcomes in patients that undergo coronary heart bypass surgery.

**Methodology:** We included patients in range of 50 – 70 years in our study. We divided these into two groups. Patients that are  $\geq 50$  years old who underwent CABG were selected as Group A . The patients who were 50–59 years old ( Group A ) were compared to patients aged 60 – 70 years old ( Group B ) to determine if the age difference of the patients had an impact on surgical outcomes. We included 50 patients in each group . Demographic information was collected for each patient. Pre-, intra-, and post-operative findings were identified. The rates of postoperative complications, mortality, hospital length of stay (LOS) and cost were compared

**Results:** In our study, we found , Group A found 4% mortality rate while Group B found it was 6% . Hospital stay rate in group B was 17 % , while in Group A was 16 % . Postoperative complications were seen in 24% in group B , while 16% in group A. Postoperative hospital stay was 8.40 days in Group B while 6.90 in Group A.

**Conclusions:** Patients aged 60 - 70 years had serious side effects after surgery. Finally, the findings of the study indicate that age affects the outcome of surgery after CABG. These older patients face greater risk of surgery and accumulate significant hospital costs.

**Keywords:** Age, Coronary artery disease, Post-operative complications

### **Introduction:**

The rise in the number of elderly people worldwide has led to a dramatic increase in patients over the age of 50 who need surgery for heart disease. (1) Coronary artery bypass graft surgery is most common in patients over  $\geq 50$  years of age. (1) Longevity in older patients has resulted in an increase in heart disease and a corresponding increase in the number of cardiac functions in this age group. Another concern for elderly patients is often the fear of the side effects of surgery. (2) There are chances that older patients will not recover or perhaps have a weakened muscle. The same alarm was assigned to a cardiologist who considered Octogenarians at high risk for systemic complications during percutaneous coronary intervention (PCI) due to their high prevalence of comorbidities related to severely depressed heart function [3,4]. Although, the effects of CABG among

Octogenarians are lower in younger patients, the CABG effects of Octogenarians are better than PCI or medical treatment alone [5] . Currently, there are no clear conclusions in literature on the effect of age with CABG patient outcomes. The purpose of the study was to assess the age effect on postoperative outcomes in patients undergoing coronary heart bypass surgery.

#### Methods:

The present study was conducted in our Department. Sample size was estimated with the help of expert.

We included patients in range of 50 – 70 years in our study. We divided these into two groups. Patients that are  $\geq 50$  years old who underwent CABG were selected as Group A . The patients who were 50–59 years old ( Group A ) were compared to patients aged 60 – 70 years old ( Group B ) to determine if the age difference of the patients had an impact on surgical outcomes. We included 50 patients in each group .

Demographic information was collected for each patient. Pre-, intra-, and post-operative findings were identified. The rates of postoperative complications, mortality, hospital length of stay (LOS) and cost were compared

#### Results

A total of 100 patients were identified who were  $\geq 50$  years old and underwent CABG.

Table 1) Mortality indicator

Mortality	Number of patients	Percentage
Group A ( N=50)	2	4
Group B ( N=50)	3	6

Group A found 4% mortality rate while Group B found it was 6% .

Table 2) Hospital stay indicator

Hospital stay	Mean $\pm$ SD
Group A ( N=50)	14.10 $\pm$ 2.75
Group B ( N=50)	17.45 $\pm$ 3.21

Hospital stay rate in group B was 17 % , while in Group A was 16 %.

Table 3) Post-operative complications indicator

Post-operative complications	Number of patients	Percentage
Group A ( N=50)	8	16
Group B ( N=50)	12	24

Postoperative complications were seen in 24% in group B , while 16% in group A.

Table 4) Post operative Hospital stay indicator

Postoperative Hospital stay	Mean $\pm$ SD
Group A ( N=50)	6.90 $\pm$ 1.24
Group B ( N=50)	8.40 $\pm$ 1.60

Postoperative hospital stay was 8.40 days in Group B while 6.90 in Group A.

### Discussion:

Coronary artery bypass graft surgery in the elderly is becoming increasingly common. Our data show, however, that the efficacy of bypass surgery in very elderly people is associated with much higher short-term and long-term mortality rates and that they use more health resources per procedure than younger patients.(6)

In our study , we found , Group A found 4% mortality rate while Group B found it was 6% . Hospital stay rate in group B was 17 % , while in Group A was 16 % . Postoperative complications were seen in 24% in group B , while 16% in group A. Postoperative hospital stay was 8.40 days in Group B while 6.90 in Group A. However, some studies have argued that risk factors before surgery and treatment modalities are responsible for the observed effects of age and sex [7] while others have reported no significant differences in these factors [8]. In 2012, Nicolini et al. [9] investigated the early and late effects on octogenarians under CABG, suggesting that age should not be a barrier to CABG in carefully selected patients. They showed that the selection of candidates based on the assessment of systemic comorbidities offers significant benefits in effective vascular remodeling. These findings, although different from our research results, highlight the fact that careful patient selection, regardless of age, is important for surgical outcomes.

Further support for our results comes from Nicolini et al. in a follow-up study in his previous work, in which they determined that  $\geq 80$ -year-old patients had the highest incidence of all causes and cardiac-related deaths, as well as increased levels of resuscitation and cardiopulmonary resuscitation with PCI [10]. In addition, Piatek et al. [11] reported 7% mortality in octogenarians compared with 3.4% of all CABG procedures at their facility. Long-term mechanical ventilation, thoracotomy, and prolonged procedure are defined as risk factors for hospital mortality in this group, while high LVEF (Left Ventricular Ejection Fraction) and LIMA (Left Internal Mammary Artery) have been implicated. graft graft is a hospital death. In contrast, Smith et al. [8], reported that CABG in Octogenarians is safer and less expensive than in Septuagenarians. However, a relatively small number of Octogenarians (n = 71) compared with younger (n = 579) and older (n = 384) Septuagenarians limit the impact of this study.

The long shelf life of the elderly after surgery was only a small indication of their high cost. The intensity of day-to-day medical services also increased after bypass surgery, as evidenced by their high cost on hospital day. The literature on clinical predictions of death after bypass surgery in the elderly is highly limited. A large number of reported clinical trials from the Mayo Clinic (159 patients) were able to identify only distressed ventricular function as an independent predictor of bypass surgical mortality in octogenarians.(12) Weintraub and colleagues<sup>9</sup> also noted that the combination of left ventricular dysfunction and and diagnosed diabetes.

octogenarians are at high risk of hospitalization and long term. Congestive heart failure and surgical urgency have predicted surgical death.(13) Although other clinical features such as peripheral vascular, pulmonary, and kidney disease appear to increase the risk of surgery in many of the octogenarians in these studies, no series has been large enough. to validate these methods.(14)

The analysis conducted in the current study focused first on the influence of age and followed by the effectiveness of modern surgical techniques on pre- and post-clinical outcomes. A group of patients 75 years of age or older had a very high mortality rate, hospitalization of intubation, kidney failure, and hospitalization. However, the team presented surgery for severe clinical conditions as indicated by the analysis of the underlying features. In conclusion, this study suggests that patients who are 75 years of age or older and who suffer from coronary revascularization have a more severe clinical condition and have higher mortality and morbidity in the hospital.

### Conclusions

Patients aged 60 - 70 years had serious side effects after surgery. Finally, the findings of the study indicate that age affects the outcome of surgery after CABG. These older patients face greater risk of surgery and accumulate significant hospital costs.

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