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Research Article

Blend Of Semifowler's Position With Chair Sitting In Optimizing The PFT, PEFR And RPE Scale Post Operative Coronary Artery Bypass Graft Surgery: A Randomized Controlled Trial

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ARTICLE INFO

ABSTRACT

BACKGROUND: Coronary Artery Disease (CAD), characterized by inflammation and atherosclerosis, often necessitates the Coronary Artery Bypass Graft (CABG) procedure, especially for multi-vessel disease, reducing mortality and symptoms. Peak expiratory flow rate, pulmonary function test assess lung function; dyspnoea and RPE gauge breathing discomfort and exertion perception. Body position crucially affects pulmonary function.

OBJECTIVES: The purpose of the study was to find out the impact of body positions on PFT, PEFR and dyspnoea in patients with post op CABG.

METHODOLOGY: Study Design- Experimental study design, study type: A Randomized control trial, subjects were selected based on inclusion and exclusion criteria with simple random sampling technique. Subjects with post op CABG were taken. PFFR, PFT and RPE scale were used to assess pre and post effect of semi fowlers position blending with chair sitting position.

RESULT: Student t-test analysis was used to examine the outcome. The analysis that met statistical significance was ($p<0.001$). The mean PEFR of the post-experimental group (309.52) is greater than that of the post-control group (223.81). While the post-experimental group's mean FVC (2.91) and FEV1 (2.45) is greater than the post-control group's mean FVC (2.11) and FEV1 (1.87), the post-experimental group's mean RPE is 7.81 points lower than the post-control group's (11.2). The mean FEV1/FVC of the post-experimental group (0.97) is greater than that of the post-control group (0.85).

CONCLUSION: The study concluded that improvement in PEFR, PFT and RPE scale values is seen after implementing blend of semi fowlers position with chair sitting position in post op CABG patients.

KEYWORDS: PEFR, PFT, RPE Scale and Post Operative CABG

INTRODUCTION:

Coronary artery disease (CAD) stands as a prominent cardiovascular ailment, asserting itself as the primary cause of mortality in both developed and developing nations [(1)]. CAD is an inflammatory atherosclerotic disease[(2)]. Atherosclerosis is highly preventable and creates the path physiology for CAD [(3,4)]. Atherosclerosis, a modifiable affliction, constitutes the fundamental path physiological basis for CAD, featuring an evolving interplay of compromised endothelium, subtle inflammation, lipid accumulation, and the formation of arterial plaques. Consequently, this process culminates in the disruption or cessation of blood flow [(5)]. The etiological factors for CAD encompass both modifiable and non-modifiable elements. Non-modifiable aspects

include age, gender, and familial CAD history, whereas modifiable factors encompass sedentary habits, inadequate diet, smoking, hypertension, hyperlipidemia, diabetes, obesity, and stress. The annual toll from CAD is staggering, claiming around 3.8 million male lives and 3.4 million female lives. Notably, 2020 witnessed a surge in CAD cases within India's urban population, with estimates ranging from 5% to 10%, and 3.3% to 7.4% in rural areas [6].

The Coronary Artery Bypass Graft (CABG) procedure is a widely practiced major surgical intervention, performed routinely on a global scale to alleviate symptoms and diminish the mortality risk for patients afflicted by ischemic heart disease. It emerges as the preferred approach for individuals grappling with multi-vessel coronary artery disease[7–9].This revascularization technique, carried out under general anesthesia, involves redirecting blood flow through a newly established artery or vein graft, circumventing the compromised segment of the coronary arteries to enhance blood circulation within the cardiac muscle tissue. Executed via a median sternotomy incision at the center of the chest, the procedure contributes to the substantial body of evidence supporting the positive impact of coronary artery bypass graft surgery on both survival rates and enhanced ventricular function [10]. Nonetheless, akin to various cardiac interventions, it's important to acknowledge the potential for postoperative pulmonary complications, encompassing pneumonia, respiratory failure, atelectasis, pneumothorax, hemothorax, pleural effusion, pulmonary embolism, adult respiratory distress, and phrenic nerve palsy[11].

Numerous studies have demonstrated that body position plays a significant role in influencing pulmonary function by impacting ventilation-perfusion matching and oxygen saturation [12]. Furthermore, research has indicated that body position can influence both lung volumes and muscle biomechanics [13].The utilization of Pulmonary Function Tests (PFTs) offers an objective and quantifiable means to assess lung function [14]. Generally, PFTs are employed to gauge lung volumes, bronchial obstruction, gas exchange, lung compliance, and ventilatory capacity. Among these tests, spirometry stands out as the most utilized method for assessing lung function. This technique involves measuring volume against time and is characterized by its simplicity and quick execution. Patients are instructed to take a deep breath and then exhale forcefully, aiming to expel air as rapidly and completely as possible [15,16].

The Peak Expiratory Flow Rate (PEFR) represents the maximum expiratory flow rate sustained by an individual for at least 10 milliseconds, measured in Liters per minute (L/min). PEFR has long been employed as a measure of ventilatory capacity due to its simpler and less fatiguing procedure in comparison to the more complex Maximum Voluntary Ventilation (MVV) assessment. The use of the mini-Wright peak flow meter has become prevalent for PEFR measurement, offering a readily accessible method [17].

Dyspnoea is defined as a subjective sensation of breathing discomfort, characterized by varying and distinct sensations of differing intensity, which can manifest acutely or chronically. Commonly referred to as shortness of breath or breathlessness, dyspnoea is a frequently reported distressing symptom, accounting for a substantial proportion of admissions to tertiary medical centers. As a subjective symptom, dyspnoea's sensations encompass effort/work of breathing, chest tightness, and air hunger—indicative of inadequate inspiration. Evaluating dyspnoea involves assessing the intensity of these sensations, the level of distress experienced, and its impact on daily activities. While normal during strenuous exertion, dyspnoea can become pathologic if experienced unexpectedly[18].Rate of Perceived Exertion (RPE) is a used to subjectively quantify an individual's perception of the physical demands of an activity[19].

OBJECTIVES

1.To find out the impact of body position on pulmonary function test in patients with post-op CABG.
2. To find out the impact of body position on peek expiratory flow rate in patients with post-op CABG.
3. To find out the impact of body position on dyspnoea in patients with post-op CABG.

MATERIAL AND METHOD

- **STUDY TYPE:** A Randomized controlled trial.
- **SAMPLE METHOD:** Simple Random sampling.
- **SAMPLE SIZE:** 42, for calculation of sample size for present study, G. power software is use.

Alpha = 0.5, Power =0.80, large effect was considered = 0.8 Using G*Power software sample size will find to be 21 samples/ patients in each group.

- **STUDY DURATION:** 6 months.
- **STUDY SETTING:** Study will be carried out in MGM Hospital, Aurangabad.
- **MATERIAL:** Spirometer, Peak flow meter, Dyspnoea (RPE) scale, Laptop, Chair.

INCLUSION CRITERIA

1.Post-op CABG patients
2. Age – 25 to 65 years
3. Both male and female
4. Patients who are vitally stable

EXCLUSION CRITERIA

1.Any other disorder (Musculoskeletal disorder, Neurological disorder, etc.)
2. Any other respiratory disorder.
3. Patient with cardiac pacemaker

PROCEDURE: After we obtained clearance from ethical committee, Subjects were selected based on inclusion and exclusion criteria by Simple Random sampling technique. Instructions were given to the participants about study and its benefits and risks in their own language and inform consent was taken from them. A total of 42 subjects were taken for the study. All the subjects were divided into 2 groups, 21 in each, according to their convenience time and availability. The two groups were dividedinto group A which is experimental group and group B which is control group. On post op day 1 pre outcome measure PEFR, PFT, and RPE scale were assessed.

1) Experimental group A: Semi fowler and chair sitting position with regular chest PT.
2) Control group B: Regular chest PT

Regular Chest PT: was given for 30 min for 5 days per week that include ROM exercises of bilateral Upper and Lower limb, breathing exercises, Airway clearance technique followed by splinted huffing & coughing, Incentive Spirometry and Ambulation was given to reduce pulmonary complications.

In group A (Experimental group): After giving the regular chest PT patients were encouraged to stay in semi fowler/ chair sitting position for 30 min per session for 5 days.

In group B (Control group): Regular chest PT was given for 30 min per session for 5 days.
On post op day 5 post outcome measures were taken. Then we compared pre-and post-PFT, PEFR, and RPE scale readings and concluded the result.

Fig 1 SEMI FOWLERS POSITION **Fig 2 CHAIR SITTING POSITION**

INTERVENTION:

DAYS	REGULAR CHEST PHYSIOTHERAPY PROTOCOL
Day 1	Breathing exercises, PROM: B/L UE & LE, Active ankle exercise, Airway clearance technique followed by splinted huffing & coughing, incentive spirometry.
Day 2	Breathing exercises,Active ankle exercise, Airway clearance technique followed by splinted huffing & coughing, incentive spirometry, legs dangling at the side of bed.
Day 3	AAROM exercises of B/L UE & LE,breathing exercises,Active ankle exercise, Airway clearance technique followed by splinted huffing & coughing, incentive spirometry Sitting in chair, spot marching, Ambulation 50 steps
Day 4	AROM exercises of B/L UE &LE,breathing exercises,Active ankle exercise, Airway clearance technique followed by splinted huffing & coughing, incentive spirometry, Ambulation 100 steps
Day 5	Resisted exercises for B/L UE & LE, breathing exercises,Active ankle exercise, Airway clearance technique followed by splinted huffing & coughing, incentive spirometry, Ambulation 150 steps

RESULT:

The study included 42 subjects. Graph 1-4 depicts comparison between pre and post outcome parameters like PEFR, RPE, FVC, FEV1 and FEV1/FVC of group A and group B respectively. A paired t test was done to compare between pre-intervention and post intervention in both groups. There was a significant difference in the pre and post intervention readings for both the group A & group B at outcome measures values in post op CABG patients.

Table 1depicts statistics of group A. PEFR in post op group A (309.52± 76.25 L/min) was significantly higher than pre op group A (258.57± 83.68/min) and table 2 depicts statistics of group A RPE, FVC, FEV1 and FEV1/FVC. The mean of RPE in post of group A (7.81 ± 1.36) was significantly lower than pre op group A (14.23 ± 2.52) and the Mean of FVC in post of group A (2.91 ± 0.77L/min) was significantly higher than pre op group A (1.95 ± 1.05L/min) also The Mean of FEV1 in post of group A (2.45 ± 0.77L/min) was significantly higher than pre op group A (1.65 ± 0.95L/min) and The FEV1/FVC ratio in post of group A (0.97 ± 0.06 L) was significantly higher than pre op group A (0.82 ± 0.07 L).

Table 3 depicts PEFR in post of group B (223.81 ± 64.69L/min) was significantly higher than pre op group B (205.71 ± 63.05L/min) and table 4 depicts that the RPE in post of group B (11.23 ± 2.66) was significantly lower than pre op group B (13.33 ± 2.97) the Mean of FVC in post of group B (2.11 ± 0.93L/min) was significantly higher than pre op group B (1.91 ± 0.94L/min) and the Mean of FEV1 in post of group B (1.87 ± 0.84L/min) was significantly higher than pre op group B (1.62 ± 0.93L/min) the Mean of FEV1/FVC ratio in post of group B (0.85+ ± 0.15L/min) was significantly higher than pre op group B (0.81 ± 0.12L/min)

Graph- 5 and 6 depicts comparison of group A and group B post intervention findings. There was a significant difference in the post intervention Group-A and post intervention Group-B related at PEFR, RPE, FVC and FEV1 values in post op CABG patients. And there was no significant difference FEV1/FVC value in post intervention Group-A and post intervention Group-B

Table 5and 6 depicts statistics of group A and group B post intervention so when comparing PEFR score between the experimental and control group The mean of post experimental group (309.52±76.25L/min) was significantly higher than post control group (223.81±64.69L/min), RPE scores between the experimental and control groups the Mean of RPE in post experimental group (7.81±1.36L/min) was significantly lower than post control group (11.2 ± 2.66L/min) the Mean of FVC in post experimental group (2.91±0.77L/min) was significantly higher than post control group (2.11±0.93L/min) group the Mean of FEV1/FVC ratio in post group A (0.97±0.06L/min) was not significant than post op group B (0.85 ± 0.15L/min).

Both the groups with pre and post intervention shows significant effect on PEFR, RPE, FVC, FEV1 and FEV1/FVC but when comparing post intervention group A with post intervention group B, group A – interventions is more effective on PEF RPE, FVC and FEV1 than group B. It also suggests that there was no significant difference in value of FEV1/FVC between post intervention group AandB. Therefore, this study shows that group A (blend of semi fowler and chair sitting with regular chest pt) is effective that group B (regular chest PT)

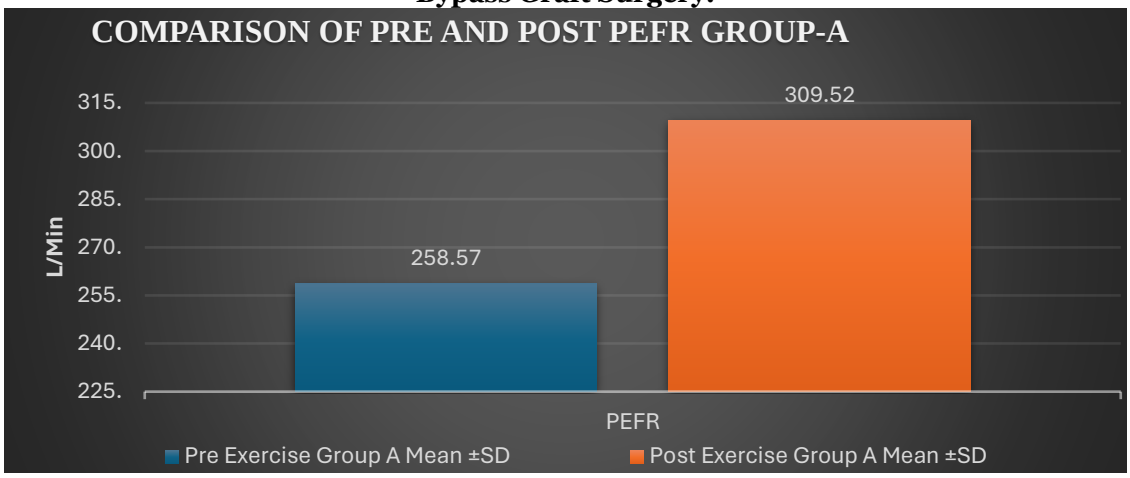
GROUP A – Experimental Group

TABLE-1 Comparison of pre and post PEFR values in Post Operative Coronary Artery Bypass Graft Surgery.

Outcome measurements	Pre-Exercise Group A Mean ±SD	Post Exercise Group A Mean ±SD	T value	P value
PEFR	258.57± 83.68	309.52± 76.25	15.10	<0.0001

On comparison of pre and post PEFR values in post op CABG patient using Kolmogorov-Smirnov test P value obtain was <0.0001 statistically significant.

GARPH 1 - Comparison of pre and post PEFR values in Post Operative Coronary Artery Bypass Graft Surgery.



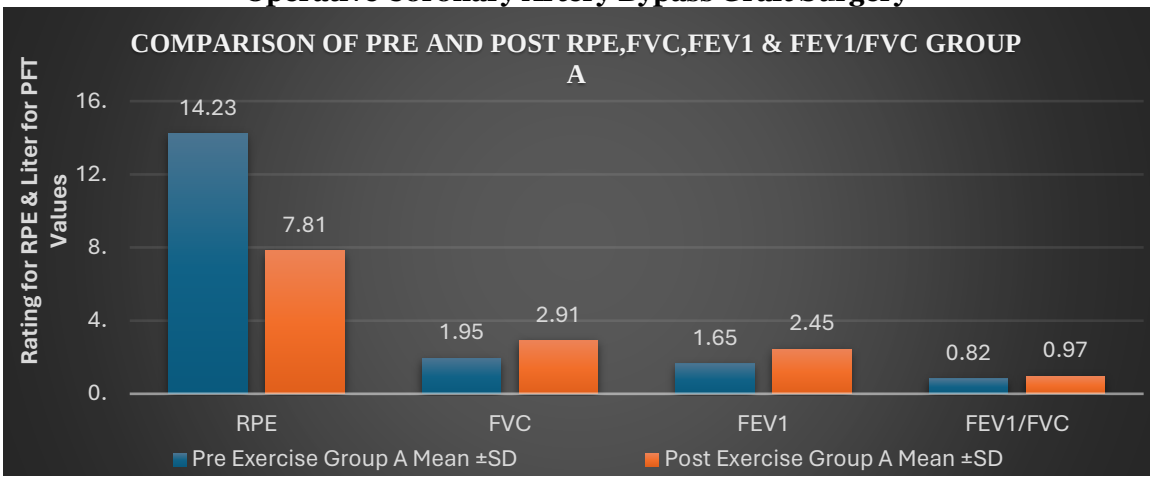
There was a significant difference in the pre- test and post- test values of PEFR in post op CABG patient using Blending of Semifowler's Position with Chair sitting position.

TABLE 2 –Comparison of pre and post RPE Scale, FVC, FEV1 & FEV1/FVC Ratio in Post Operative Coronary Artery Bypass Graft Surgery

Outcome measurements	Pre-Exercise Group A Mean ±SD	Post Exercise Group A Mean ±SD	T value	P value
RPE	14.23 ± 2.52	7.81 ± 1.36	11.684	<0.0001
FVC	1.95 ± 1.05	2.91 ± 0.77	4.612	0.0002
FEV1	1.65 ± 0.95	2.45 ± 0.77	5.678	<0.0001
FEV1/FVC	0.82 ± 0.07	0.97+ ± 0.06	2.958	0.0081

On comparison of pre and post RPE, FVC, FEV1 values in post op CABG patient using Kolmogorov-Smirnov test P value obtain was <0.0001,0.0002, <0.0001, respectively statistically significant and**FEV**1/FVC ratio value is 0.0081 which is statically not significant.

GRAPH 2 - Comparison of pre and post RPE Scale, FVC, FEV1 & FEV1/FVC Ratio in Post Operative Coronary Artery Bypass Graft Surgery



There was a significant difference in the pre- test and post- test values of RPE, FVC & FEV1 but no significant difference in FEV1/FVC Ratio in post op CABG patient using Blending of Semifowler's Position with Chair Sitting position.

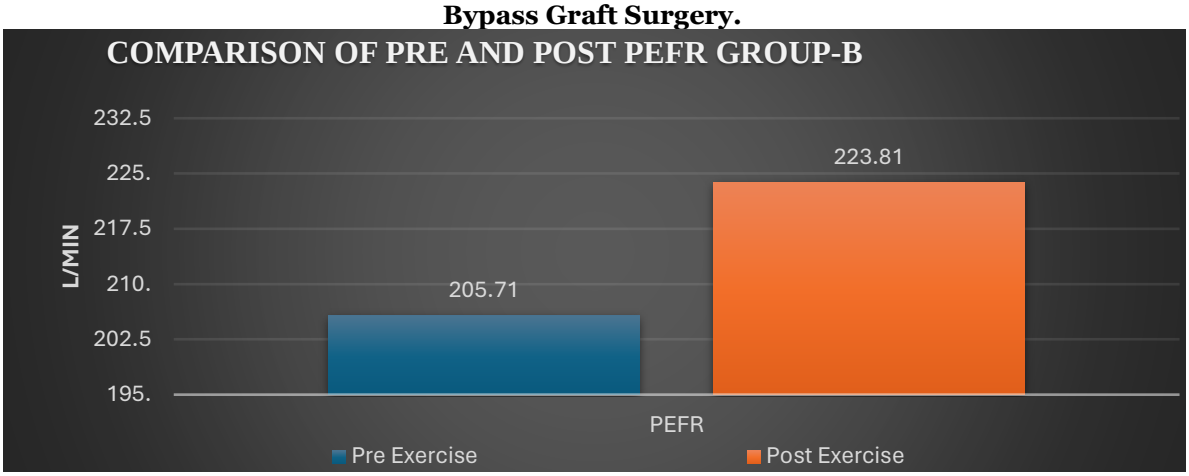
GROUP B – control group

TABLE 3 -Comparison of pre and post PEFR values in Post Operative Coronary Artery Bypass Graft Surgery

Outcome measurements	Pre-Exercise Group B Mean ±SD	Post Exercise Group B Mean ±SD	T value	P value
PEFR	205.71 ± 63.05	223.81 ± 64.69	8.455	<0.0001

On comparison of pre and post PEFR values in post op CABG patient using Kolmogorov-Smirnov test P value obtain was <0.0001 statistically significant.

GRAPH 3 – Comparison of pre and post PEFR values in Post Operative Coronary Artery Bypass Graft Surgery.



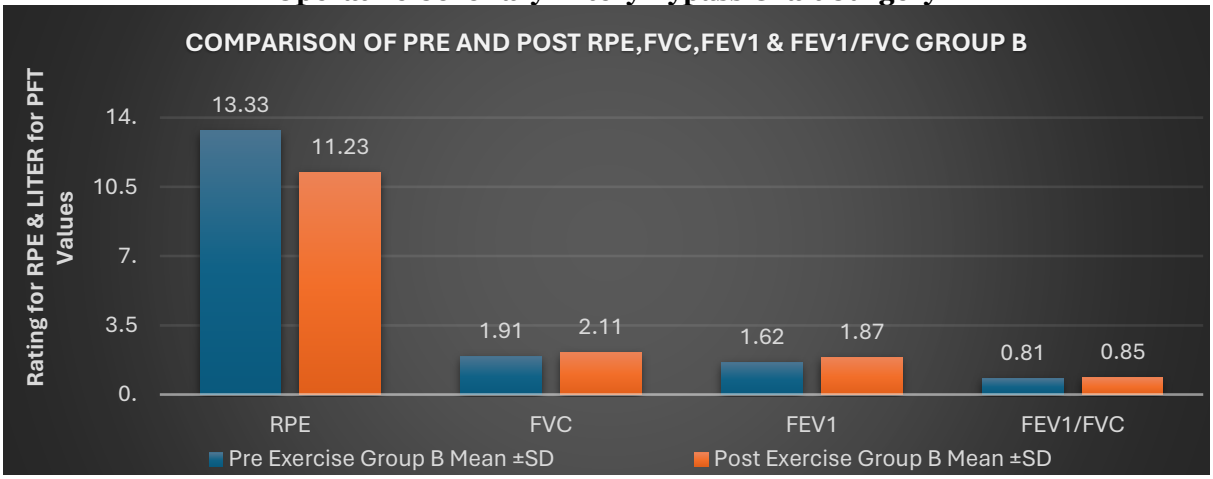
There was a significant difference in the pre- test and post- test values of PEFR in post op CABG patient using Blending of Semifowler's Position with Chair Sitting position.

TABLE 4 –Comparison of pre and post RPE Scale, FVC, FEV1 & FEV1/FVC Ratio in Post Operative Coronary Artery Bypass Graft Surgery

Outcome measurements	Pre-Exercise Group B Mean ±SD	Post Exercise Group B Mean ±SD	T value	P value
RPE	13.33 ± 2.97	11.23 ± 2.66	12.495	<0.0001
FVC	1.91 ± 0.94	2.11 ± 0.93	4.077	0.0006
FEV1	1.62 ± 0.93	1.87 ± 0.84	5.046	<0.0001
FEV1/FVC	0.81 ± 0.12	0.85+ ± 0.15	2.240	0.0366

On comparison of pre and post RPE, FVC, FEV1 values in post op CABG patient using Kolmogorov-Smirnov test P value obtain was <0.0001,0.0006, <0.0001, respectively statistically significant and**FEV**1/FVC ratio value is 0.0366 which is statically not significant.

GRAPH 4 - Comparison of pre and post RPE Scale, FVC, FEV1 & FEV1/FVC Ratio in Post Operative Coronary Artery Bypass Graft Surgery



There was a significant difference in the pretest and post test values of RPE, FVC & FEV1 but no significant difference in FEV1/FVC Ratio in post op CABG patient using Blending of Semifowler's Position with Chair Sitting position.

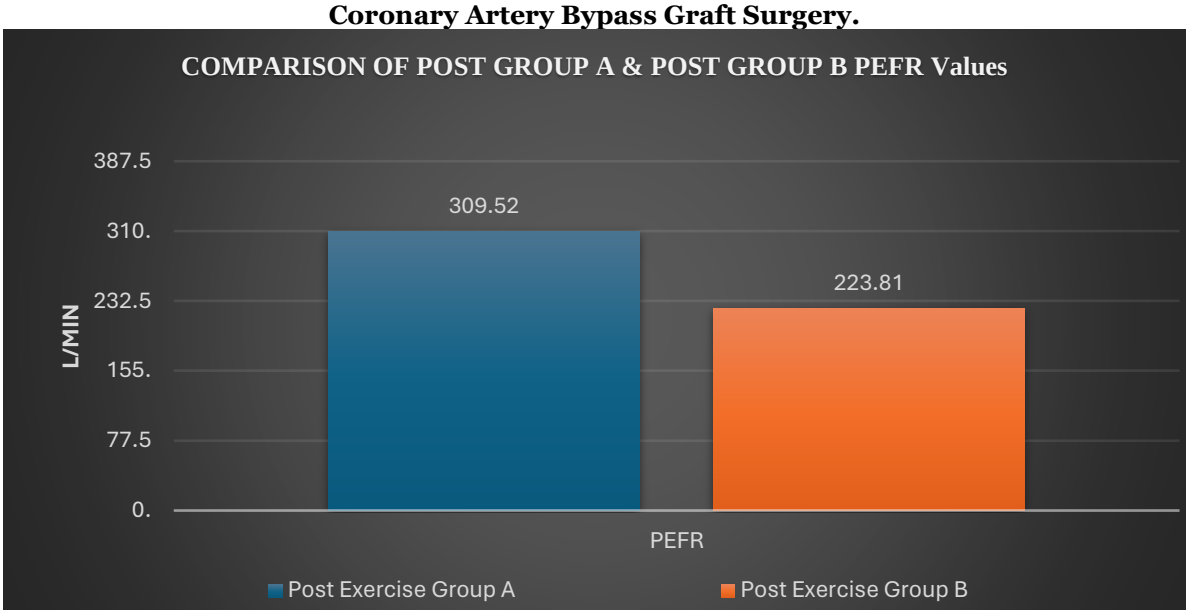
COMPARISON OF GROUP A & GROUP B

TABLE 5 –Comparison of post Group A and post Group B PEFR values in Post Operative Coronary Artery Bypass Graft Surgery.

Outcome measurements	Post Group A Mean ±SD	Post Group B Mean ±SD	T value	P value
PEFR	309.52 ± 76.25	223.81 ± 64.69	3.448	0.0025

On comparison of post Group, A and post Group B PEFR values in post op CABG patient using Kolmogorov-Smirnov test P value obtain was 0.0025 and <0.0001statistically significant.

GRAPH 5 – Comparison of post Group A and post Group B PEFR values in Post Operative Coronary Artery Bypass Graft Surgery.



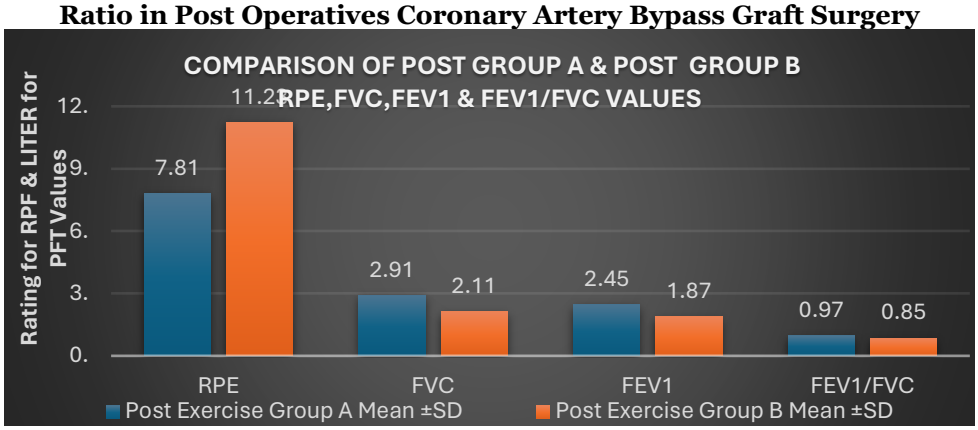
There was a significant difference in the post Group A test and post Group B test values of PEFR values in post op CABG patient using Blending of Semifowler's Position with Chair sitting position.

TABLE 6 –Comparison of Post Group A and post Group B RPE Scale, FVC, FEV1 & FEV1/FVC Ratio in Post Operatives Coronary Artery Bypass Graft Surgery

Outcome measurements	Post group A Exercise Mean ±SD	Post group B Exercise Mean ±SD	T value	P value
RPE	7.81 ± 1.36	11.2 ± 2.66	5.715	<0.0001
FVC	2.91 ± 0.77	2.11 ± 0.93	5.189	<0.0001
FEV1	2.45 ± 0.77	1.87 ± 0.84	5.408	<0.0001
FEV1/FVC	0.97 ± 0.20	0.85+ ± 0.15	0.6825	0.5032

On comparison of post group A and post Group B RPE, FVC, FEV1 values in post op CABG patient using Kolmogorov-Smirnov test P value obtain was <0.0001, <0.0001, <0.0001, respectively statistically significant and FEV1/FVC ratio value is 0.5032 which is statically not significant.

GRAPH 6 - Comparison of Post Group A and post Group B RPE Scale, FVC, FEV1 & FEV1/FVC Ratio in Post Operatives Coronary Artery Bypass Graft Surgery



There was a significant difference in the post group A test and post Group B test values of RPE, FVC & FEV1 but no significant difference in FEV1/FVC Ratio in post op CABG patient using Blending of Semifowler's Position with Chair Sitting position.

DISSCUSSION:

The aim of this study was to find out the impact of body position on the outcome of pulmonary function test, PEFR &dyspnoea in patients with postoperative coronary artery bypass grafting surgery. All individuals were evaluated using Pulmonary function test value: FVC, FEV1, FVC/FEV1 Ratio, FRC and RV, Rate of perceived exertion Scale (RPE) and Peak expiratory flow rate value. The study shows statistically significant results in post op CABG patients who went through blend of semi fowler's position with chair sitting position in their treatment protocol. There was a marked increase in post op values of G-A compared to G-B

Our main goal of positioning specifically semi fowlers and chair sitting are to improve lung function, lung mechanics and lung volume in patients with post op CABG. Semi Fowler's position is giving a position with a slope of 30^0-40^0 of bed the goal of this intervention is to maxims lung expansion and reduce abdominal pressure and to reduce o2 consumption[20,21]. Whereas Upright sitting position maximizes lung volume and capacities, the vertical gravitational gradient is more, the anteroposterior diameter of chest is greatest and compression on heart and lung are minimal, Diaphragm is in shortened position therefore neural drive to diaphragm thus decrease force generated for breathing [20].

The present study shows that the evaluation of PEFR serves as another important objective measure of respiratory function. PEFR in post op group A (309.52± 76.25 L/min) was significantly higher than pre op group A (258.57± 83.68/min) GRAPH-1 and PEFR in post of group B (223.81 ± 64.69L/min) was significantly higher than pre op group B (205.71 ± 63.05L/min) GRAPH-3 By comparing the PEFR score between the experimental and control group The mean of post op experimental group (309.52±76.25L/min) was significantly higher than post op control group (223.81±64.69L/min). GRAPH-5

According to Nikita A. Tipnis et al. (2016), there is a notable variation in PEFR readings when standing, sitting, and reclining back (positions 100–450). Adult asthmatics should assess their PEF readings standing up because this posture produces the highest PEF. Impact of body postures on adult asthmatics' peak expiratory flow rates[22].Similarly,According to the findings of N. Siva Jyothi and G. Yatheendrakumaretal (2015), peak expiratory flow rate in various positions increases the sensitivity for identifying upper airways or evaluating the impact on upper airway patency. Standing>sitting> supine>prone are the positions in which the parameters Peak expiratory and Peak inspiratory flow rate changed most significantly. [23]

The present study helps in reducing dyspnoea in post op CABG who underwent blending of semi fowler's position with chair sitting position. The inclusion of the Borg RPE scale enables to explore the subjective perception of exertion during physical activities. Patients' perceived exertion levels provide valuable information on their comfort, tolerance, and readiness to engage in rehabilitative exercises. The RPE in post of group A (7.81 ± 1.36) was significantly lower than pre op group A (14.23 ± 2.52) GRAPH 2. The RPE in post of group B (11.23 ±s2.66) was significantly lower than pre op group B (13.33 ± 2.97) GRAPH-4. By comparing RPE scores between the experimental and control groups the Mean of RPE in post of experimental group (7.81±1.36L/min) was significantly lower than post op control group (11.2 ± 2.66L/min) GRAPH-6

Similarly, Güleser Akpınar et al. (2021) In the studyof "Evaluation of the effect of patient position in the management of chronic heart failure patients presenting with dyspnea," concluded that when treating CHF patients who come with dyspnea acutely, the patient's position is critical in determining how they perceive their own mortality as well as their level of dyspnea. In the sitting position, mortality is lower and dyspnea perception goes away sooner[24].

Our present study also shows that there was a statistically significant difference in pre op PFT findings and post op PFT findings of GROUP A and GROUP B. In this study the Mean of FVC in post of group A (2.91 ± 0.77L/min) was significantly higher than pre op group A (1.95 ± 1.05L/min) GRAPH 2 and the Mean of FVC in post of group B (2.11 ± 0.93L/min) was significantly higher than pre op group B (1.91 ± 0.94L/min). (1.91 ± 0.94L/min) GRAPH4. By comparing the FVC score between the experimental group and control group the Mean of FVC in post of experimental group (2.91±0.77L/min) was significantly higher than post op control group (2.11±0.93L/min) GRAPH 6. The Mean of FEV1 in post of group A (2.45 ± 0.77L/min) was significantly higher than pre op group A (1.65 ± 0.95L/min) GRAPH-2 and the Mean of FEV1 in post of group B (1.87 ± 0.84L/min) was significantly higher than pre op group B (1.62 ± 0.93L/min) GRAPH-4. By comparing the FEV1 score between the experimental group and control group the Mean of FEV1 in post of experimental group (2.45±0.77L/min) was significantly higher than post op group B (1.87± 0.84L/min) GRAPH-6

In our present study when we Compare Group A with Group B it states that there was a statistically significant difference in PFT findings (FVC and FEV1) of GROUP A was higher than GROUP B but there was no significant difference in their ratio i.e. FVC/FEV1. The FEV1/FVC ratio in post of group A (0.97+ ± 0.06) was significantly higher than pre op group A (0.82 ± 0.07) GRAPH-2 and the Mean of FEV1/FVC ratio in post of group B (0.85+ ± 0.15L/min) was significantly higher than pre op group B (0.81 ± 0.12L/min) GRAPH-4 By comparing the ratio between the experimental group and control group the Mean of FEV1/FVC ratio in post of experimental group (0.97±0.20L/min) was not significant than post op group B (0.85 ± 0.15L/min) GRAPH-6

There are various studies on different conditions which states the effect of body position on PFT. According to Shikma Katz et al.'s (2018) investigation into the impact of body position on pulmonary function, there is variation among study groups in the best posture and extent of the advantage that body position imparts on PFT outcomes. Sitting is the standard position for performing PFTs. In patients with SCI and neuromuscular diseases, we advise that the supine position be taken into consideration for PFTs in addition to sitting. It is important to remember that body position affects pulmonary physiology and function while treating patients with heart, lung, SCI, neuromuscular disease, or obesity[25]. Haq Kiran et al. The Effect of Different Body Positions on Pulmonary Function of Young Healthy Adults study found that, due to changes in the respiratory pattern, standing, sitting, and supine positions all statistically significantly alter spirometry values in healthy males and females. Male and female spirometry results differed significantly as well. There was no significant difference in how different sitting positions affected one another[26].

Our result supported the hypothesis & shows significant difference between Experimental Group A and control Group B Hence, our study proves that Blending of semi fowler's position with chair sitting position can be recommended for Post op CABG patients to reduce post op pulmonary complications and improve their efficacy.

LIMITATIONS AND SUGGESTION:

The study was conducted in a single medical center, it may not account for variations in practices and patient populations across different healthcare settings. The study focuses on specific outcomes such as PFT (Pulmonary Function Test), PEFR (Peak Expiratory Flow Rate), and RPE (Rating of Perceived Exertion) scale, while potentially overlooking other relevant clinical outcomes. The duration of this study is relatively short, limiting the ability to assess long-term effects or outcomes. The study has a small sample size, limiting the generalizability of the findings to a broader population. Future researchers could explore the long-term effects of the positioning strategy on outcomes such as pulmonary function, exercise tolerance, and quality of life.

CONCLUSION:

Therefore this study concluded that the blend of Semifowler's Position with Chair Sitting in post-operative care following CABG surgery represents a novel and effective approach aimed at optimizing respiratory function, mobility, and overall recovery By combining the benefits of both positions, this intervention seeks to address common challenges encountered during the post-operative period, such as impaired lung expansion, lung mechanics, decreased physical activity tolerance, dyspnea, increases o2 consumption, decreased lung volumes & capacities and increased risk of complications.

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