

Effect of Early Ambulation Versus Late Ambulation on Patients' Outcome among Patients Underwent Transfemoral Coronary Procedures

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ABSTRACT

Background: Cardiac Catheterization is a gold standard diagnostic test for coronary heart diseases. In order to minimize the post procedure complications, patients were restricted to prolonged bed rest that is always accompanied by back pain, urinary discomfort and vascular complications. **Objectives:** The objective of this study was to assess the effect of early ambulation on the level of back pain, urinary discomfort and vascular complications after transfemoral coronary procedures and to find out the association between the effect of early ambulation with selected demographic variables. **Method & Materials:** Seventy patients who had undergone a transfemoral coronary procedures were selected as sample by using Simple Random Sampling and structured questionnaire was used to identify the demographic variable and standardized scale was used to measure the level of back pain, urinary discomfort and vascular complications among experimental and control group. Patients in the experimental group was ambulated after 8 hours of the sheath removal and patients in the control group were received an usual routine where they restricted to 24 hours bed rest in supine position with the affected leg straight and immobilized. The collected data was tabulated and analyzed by using SPSS 21 Developer. **Conclusion:** The patients in the experimental group had significant reduction in the level of back pain, urinary discomfort and vascular complications than the control group at $p < 0.05$. The study results revealed that the early ambulation is having an effect in reducing the level of back pain, urinary discomfort and vascular complications after the cardiac catheterization.

Keywords: Effect, Early ambulation, Late ambulation, cardiac catheterization.

INTRODUCTION

Cardiac Catheterization is considered as the gold standard for the diagnosis, evaluation, and treatment of cardiac diseases. Although it can be performed through brachial, radial, or femoral arteries, the transfemoral puncture is the most common approach. Cardiac catheterization is usually performed in a specially designed cardiac catheterization suite in a hospital¹. The nurses must have an advanced knowledge and understanding of cardiac catheterization so that any procedural complications may be handled rapidly and effectively in intensive care units. Cardiac interventions have become a commonly accepted treatment option for patients with coronary heart disease. Coronary and peripheral angiography is associated with low but significant risk of the access site complications. The

patient's outcomes after removing of sheaths include vascular complications, such as bleeding, hematoma, distal embolization, pseudoaneurysm and arterial thrombosis and they are the most important vascular complications of coronary angiography. Because of possible vascular events at the groin site, all patients are prescribed strict immobilisation and bed rest in the supine position¹¹.

The involved leg is immobilised for 2–24 h after the procedure to prevent vascular complications, which occur at a rate of 1.96% (0.86–2.5%) in patients who have undergone transfemoral catheterisation^{4,5}. Bleeding and haematoma are normally formed in the soft tissue of the upper thigh and disappear a few days after catheterisation. It is therefore important to identify safe and feasible approaches to promote patient comfort

without increasing the risk of vascular complications including haematoma and bleeding⁶. Chair states that back pain after cardiac catheterization causes of the complaints of pain in 35.8% patients. It has been argued that prolonged bed rest may be associated with more discomfort, dissatisfaction, back pain, voiding problems and groin site pain⁷. If the sandbag is removed from the insertion site and patients are given permission to change their position in bed, they experience significantly less fatigue and back pain, and their satisfaction and comfort increase¹¹. In addition, early ambulation may reduce length of the hospital stay and the cost of nursing care¹⁰. So the researchers were motivated to determine the effect of early ambulation on the complications after coronary angiography and to examine possibility and safety of these interventions after angiography.

OBJECTIVES

The objective of this study was to assess the effect of early ambulation on the level of back pain, urinary discomfort and vascular complications after transfemoral coronary procedures and to find out the association between the effect of early ambulation with selected demographic variables.

METHOD AND MATERIALS

The study was conducted in Intensive Coronary Care Unit after the written permission from the higher authorities. 70 Samples were selected using simple random sampling technique i.e 35 in control group and 35 in experimental group who was undergone transfemoral coronary procedure. The objective of the study was explained and informed consent was obtained from the study samples. **Criteria For Sample Selection.** **Inclusion Criteria:** Age between 35 to 65 years, Both male and female gender, Elective cardiovascular angiography and interventions via the femoral artery, Patients can communicate and cooperate well with the sedation score 1 and hemodynamically stable, Patients who are willing to participate in the study. **Exclusion criteria:** Being an emergency case for cardiovascular angiography and interventions, Patient having a history of bleeding disorders or the International normalized ratio (INR) > 2, having a history of back pain disorders and active bleeding and hematoma at the femoral access site immediately after the procedure.

Demographic data and bio-physiological parameters in both pretest and post test was collected by using structured questionnaire and the level of back pain, urinary discomfort and vascular complications were measured by using standardized scales¹. The early ambulation was given after 8 hours of sheath removal for the experimental group and the control group received an usual routine where they restricted to 24 hours bed rest in supine position with the affected leg straight and immobilized. The Post test level of level of back pain, urinary discomfort and vascular complications were measured by the investigator followed by ambulation and in next day morning. The nurse investigator thanked the participants for their cooperation throughout the data collection period.

RESULT

Demographic and Bio-physiological variables

- That the majority of the Sample belongs to the age group of 46-55 in both control (46%) and experimental group (48%).
- The majority of population were male (80%) in experimental (78%) in control group.
- The findings shows only 20% of the samples having the past history of cardiac catheterization in experimental and (9%) in control.
- The findings shows only 37% were having the previous knowledge of cardiac catheterization in experimental group and 26% in control group.
- The majority of Samples 91% were in the category of normal weight and 9% of them obese in experimental and 87% of them had normal weight and 13% of them obese in control group.

In post test, majority 66% of the patients had the Mean Arterial Pressure between 70-79 and 34% were with 80-89 in experimental group. In control group 68% of them had the Mean Arterial Pressure between 70-79 and 32% were with 80-89.

In post test, 54% of the patients had pulse rate at catheterized leg between 70-79, 28% were with 80-89, 9% between 60-69 and 9% between 90-99 in experimental group. In control group majority 48% of them had pulse rate at catheterized leg between 70-79, 34% were with 80-89, 12% were with 90-99 and 6% of them between

60-69 in control group.

Effect of ambulation on Back pain

The level of back pain measured at 8 hours after sheath removal, 12 Hours and in the next day morning by using Visual Analog Scale. The mean back pain level at eight hours in the experimental group who mobilized at eight hours was 1.83, whereas the control group who remained in bed rest was 1.91. At Twelve hours, the experimental group were mobilized and control group still remains in bed, the Mean back pain level were 1.98 Vs. 3.26 respectively. In the morning, both experimental and control group were mobilized and the results were 1.03 in experimental group and 2.09 in control group. The results between the group in all the three time series were statistically significant at $p < 0.05$ level, and supporting the experimental group.

Effect of ambulation on Urinary discomfort

The level of Urinary discomfort measured at 8 hours and in the next day morning by using 5 point likert scale. The mean urinary discomfort at eight hours in the experimental group was 2.46, whereas the control group who remained in bed rest was 4.46. In the morning, both experimental and control group were mobilised and the results were 1.40 in experimental group and 2.49 in control group. The results between the group in all the two time series were statistically significant at $p < 0.05$ level, and supporting the experimental group.

Effect of ambulation on Bleeding

The Bleeding was measured at 8 hours and in the next day morning by using standardized scale. The mean Bleeding in the experimental group who mobilized at eight hours was 1.14, whereas the control group who remained in bed rest was 1.26. In the morning, both experimental and control group were mobilized and the results were 1.00 in experimental group and 1.17 in control group. The results between the group in all the two time series were statistically significant at $p < 0.05$ level.

Effect of ambulation on Hematoma formation

The Hematoma formation was measured at 8 hours after sheath removal and in the next day morning by using standardized scale. The mean Hematoma formation in the experimental group who mobilized at

eight hours was 1.17, whereas the control group was 1.31. In the morning, both experimental and control group were mobilized and the results were 1.00 in experimental group and 1.26 in control group. The results between the group in all the two time series were statistically significant at $p < 0.05$ level, and supporting the experimental group.

DISCUSSION

Assess the pretest level of back pain, urinary discomfort and vascular complications in experimental and control group.

The level of back pain, urinary discomfort and vascular complications among the patients underwent transfemoral coronary procedures was assessed by structured questionnaire and using standardized scales i.e. Visual Analog Scale for back pain and five point Likert scale for urinary discomfort and standardized scales for vascular complications¹ and analyzed using descriptive statistics. The results reveals that in experimental group, the mean pre test level of back pain was 1.83 with standard deviation 0.382 and urinary discomfort mean was 4.74 with standard deviation 0.50 and vascular complication such as hematoma formation mean was 1.17 with standard deviation 0.38 and for bleeding mean was 1.14 with standard deviation 0.35. In control group the mean of back pain was 1.91 with standard deviation 0.28, mean of urinary discomfort was 4.66 with standard deviation 0.48 and vascular complication such as hematoma formation mean was 1.31 with standard deviation 0.41 and for bleeding mean was 1.26 with standard deviation 0.44 respectively. The results between the experimental and control group were statistically significant at $p < 0.05$ level, and supporting the experimental group.

Effect of Early Ambulation in reducing the back pain, urinary discomfort and vascular complications among the patients underwent transfemoral coronary procedure in experimental group.

The study results had shown a difference in the level of back pain, urinary discomfort and after receiving early ambulation in experimental group. Data depicts that the mean post test level of back pain, urinary discomfort was lower than the pre test level of back pain and urinary discomfort. There is no major change in vascular complications. The calculated 't' value for post

test of back pain was 11.662 and for urinary discomfort was 8.623 which is greater than the table value. The computed 't' value shows that there was a significant difference between the pre and post test level of back pain, urinary discomfort after early ambulation. Based on these results the null hypothesis was rejected and the research hypothesis was accepted. This indicates that Early ambulation is effective in reducing the level of back pain, urinary discomfort but no changes in vascular complications.

A randomized controlled trail was conducted to investigate the impact of early ambulation on post transfemoral coronary procedures on back pain, urinary discomfort and vascular complications among non-emergency scheduled patients. The method of the study were patients in the study group were ambulated after four hours bed rest post transfemoral PCI and 2 hours after Coronary Angiography, whereas patients in the control group were ambulated after 12–24 hours post transfemoral PCI and 6-8 hours after CA(usual care). The result of the study revealed that a significant statistical difference was existed between both studied groups in relation to back pain and urinary discomfort for PCI and CA. As regards to vascular complication, non-significant statistical differences were put into evidence between both studied groups. The study concluded as early ambulation is safe and feasible for patients undergoing PCI and CA.Both the studies concluded as early ambulation is safe and feasible for patients undergoing PCI and CA³.

Association of pretest and post test level of back pain, urinary discomfort and vascular complication in experimental group.

The study finding have shown that the post test level of back pain, urinary discomfort and vascular complication in experimental group with selected demographic variables had no significant association for age, gender, history of transfemoral coronary Procedures and Body Mass Index.In conclusion the discussion of the study findings obtained by the nurse researcher shows that there was a significant difference in the reduction in the level of back pain, urinary discomfort among patients underwent transfemoral coronary procedures who are receiving early ambulation..

CONCLUSION

Based on the findings of the study the conclusion was drawnThe findings of the study revealed that there was a significant reduction in the level of back pain, urinary discomfort among patients underwent transfemoral coronary procedures in experimental group after early ambulation and minimal changes in back pain, urinary discomfort in the control group who was on usual routine.Early ambulation after diagnostic transfemoral catheterisation had no significant effect on the incidence of vascular complications including bleeding, haematoma in both experimental and control group. The results suggest that patients can be early ambulated after transfemoral catheterisation, and that early ambulation had no effect on the risk of vascular complications and may reduce back pain intensity and urinary discomfort.

Ethical Clearance: The ethical clearance obtained from “Institutional Human Ethics Committee” Chettinad Academy of Research and Education on 5.6.2017,Proposal No.250/IHEC/5-17.

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