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Original Research Paper

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# Effectiveness of cardiac rehabilitation programme on functional status among patients undergone primary Percutaneous Transluminal Coronary Angioplasty (PTCA)

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**ABSTRACT**

**Background:** Coronary heart disease can result in difficulties in functionality and performance of everyday activities.[1] Poor functionality and unhealthy life style habits may cause recurrence of the disease. **Objectives:** The study focused on assessment of functional status among patients undergone primary PTCA, evaluate the effectiveness of cardiac rehabilitation programme on functional status of patients undergone primary PTCA. **Materials and methods:** Quantitative approach was used for the study. Study design selected was post test control group design. Non probability purposive sampling technique was employed to select 60 patients undergone primary Percutaneous Transluminal Coronary Angioplasty at Govt. Medical College Hospital Kottayam. The technique of data collection used was self reporting. During the data collection period cardiac rehabilitation programme was given to the patients which was started immediately after primary PTCA and progressed during the in hospital days by the researcher. Post test evaluation done on the 14th day after discharge. **Results:** The study proved that cardiac rehabilitation was effective in improving functional status among patients undergone primary PTCA. **Conclusion:** Based on the findings of the study it can be concluded that there is evident improvement in functional status among patients undergone primary PTCA after cardiac rehabilitation programme.

**KEYWORDS :** Patients undergone primary Percutaneous Transluminal Coronary Angioplasty, functional status

## INTRODUCTION

Coronary Artery Disease (CAD) is a leading contributor to global mortality and morbidity. Over three quarters of cardio vascular death takes place in low and middle income countries.[2] A conservative estimate indicates that there could be 30 million CAD patients in India of which 14 million are in urban and 16 million in rural areas. If the current trend continues, by the year 2020 the burden of athero thrombotic CAD in India will surpass other regions of the world.[3] Coronary heart disease can result in difficulties in functionality and performance of everyday activities.[1] The treatment strategy for patients with evolving acute Myocardial Infarction is reperfusion therapy. In addition to the use of coronary interventions and coronary bypass surgery, which are popular methods of treating CAD, changing the individual life style and management through the correction of various risk factors are essential for preventing the recurrence of the disease. A number of studies have found that cardiac rehabilitation can improve exercise capacity in patients following percutaneous coronary interventions.[4]

## MATERIALS AND METHODS

Quantitative approach was used for the study. Study design selected was post test control group design. Non probability purposive sampling technique was employed to select 60 patients undergone primary Percutaneous Transluminal Coronary Angioplasty at Govt. Medical College Hospital Kottayam. The technique of data collection used was self reporting. The following tools were used to collect the data on the present study.

### Tool 1: Socio personal and clinical data sheet

### Tool 2: Functional status assessment scale

Duration of the study was 18 days per patient. The intervention given was cardiac rehabilitation programme. It includes coordinated nursing interventions, initiated immediately after primary PTCA, consisting of limb immobilization and elevation of $30^0$ for 6 hours, breathing exercises of 5 minutes duration for 4 times a day, progressive physical activity and individual patient education of 20 minutes duration on the 4th day, focusing on dietary modification, regular exercises, drug compliance, smoking cessation and control of co morbidities. Post test evaluation was done on 14th day of discharge.

## RESULTS

A Socio personal and clinical data sheet was prepared to collect information on different aspects. A few of the findings include the following. Among 60 patients over half of the patients were between 48- 65 yrs of age and were males. Majority of the subjects were following non vegetarian diet. Regarding unhealthy habits, over half of the subjects were having any of the unhealthy habits such as alcoholism, smoking and pan chewing. Considering previous knowledge regarding angioplasty, 60% of subjects in the control and 66.7% in the experimental group were having no previous knowledge. Of the 60 subjects 6.7 % each in control and experimental group were having three comorbidities (diabetes mellitus, hypertension and dyslipidemia). Considering noncompliance to drugs, 50% of subjects both in control and experimental group were having noncompliance. Regarding the family history of illness, 26.7% of subjects in the control group were having family history of CAD and 26.7% in the experimental group were having diabetes mellitus. The effectiveness of cardiac rehabilitation programme on functional status was done by, Mann Whiney U test. The obtained U value 26.5 is significant at 0.05 level. It is interpreted that there is statistically significant difference in the post test scores of functional status between control and experimental group. Hence it is inferred that cardiac rehabilitation programme is effective in improving the functional status among patients undergone primary PTCA.

**Table 1 Frequency distribution and percentage of patients undergone primary PTCA with respect to functional status**

n= 60

| Functional status | Control group (n= 30) | | Experimental group (n= 30) | |
|---|---|---|---|---|
| | f | % | f | % |
| Good (32- 45) | 5 | 16.7 | 30 | 100 |
| Moderate (14- 31) | 25 | 83.3 | 0 | 0 |
| Poor (0- 13) | 0 | 0 | 0 | 0 |

Table 1 shows that majority of patients in control group were having moderate functional status after 14 days of primary PTCA. In experimental group all patients were having good functional status.

**Effectiveness of cardiac rehabilitation programme on functional status of patients undergone Primary PTCA**

In this study, effectiveness of cardiac rehabilitation programme on functional status was measured on 14th day after discharge.

**Table 2 Mean rank, sum of ranks and U value of post test functional status among patients undergone Primary PTCA between control and experimental group**

n= 60

| Group | Functional status | | U |
|---|---|---|---|
| | Mean rank | Sum of ranks | |
| Control group (n= 30) | 16.38 | 491.5 | 26.5* |
| Experimental group (n= 30) | 44.62 | 1338.5 | |

*significant at 0.05 level

Table 2 shows that U value obtained for Functional status of patients undergone Primary PTCA in the control and experimental group was 26.5 for post test 1 which was significant at 0.05 level. Hence it is inferred that cardiac rehabilitation programme was effective in maintaining functional status among patients undergone Primary PTCA.

## DISCUSSION

The present study was focused on the effectiveness of cardiac rehabilitation programme on functional status among patients undergone primary PTCA at Govt. Medical College Hospital, Kottayam. Sixty patients who had undergone primary PTCA and admitted in Intensive Coronary Care Unit of Govt. Medical College Hospital, Kottayam were selected for the study and obtained data were analysed using descriptive and inferential statistics. The findings of the study were discussed in terms of its objectives and hypotheses. In the present study it was found that, clients who received cardiac rehabilitation programme had improved the functional status. These findings were supported by many earlier studies.

The present study revealed that majority of patients in control group were having moderate functional status on 14th day of discharge after primary PTCA. In experimental group all patients were having good functional status. Similar findings can be seen in a prospective one group observational study at Mid Atlantic university affiliated, tertiary care medical centre on factors related to functional status after PTCA. They performed the study on 135 adults who underwent first time PTCA. The age range was 29- 78yrs (mean age 57yrs). Outcome measure was functional status. There were significant improvements in functional status outcomes in the categories of activities of daily living, mental health and social interaction. Patients other than this treatment continued to report important functional status disabilities in the categories of activities of daily living (14%), social activity (14%), mental health (25%), quality of interaction (10%) and work performance (17%).[5]

It is interpreted that there is statistically significant difference in the post test scores of functional status between control and experimental group. Hence it can be inferred that cardiac rehabilitation programme is effective in improving the functional status among patients undergone primary PTCA. Similar findings can be seen in a quasi experimental before after study on effects of a comprehensive cardiac rehabilitation programme on quality of life in patients with coronary artery disease. They collected data on demographics, functional capacity and resting heart rate. After cardiac rehabilitation, scores of all physical domains of the SF- 36 including physical function, physical limitation, body pain and vitality were significantly improved in all patients ($p<0.05$) compared to baseline.[6]

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