



Research Paper

EFFECT OF SELECTED STRENGTHENING EXERCISES ON FUNCTIONAL STATUS AMONG PATIENTS WITH CHRONIC KIDNEY DISEASE

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In the study to assess the effect of selected strengthening exercises on functional status among patients with Chronic Kidney Disease, 30 subjects were selected by using non probability convenience sampling technique. Modified functional status questionnaire was used to assess the functional status of subjects before and after intervention. The intervention was performance of selected strengthening exercises by each subject for 20 min twice a day in the morning and evening in the presence of the investigator from day 1 to day 13. Post test was done on day 14. On comparison of functional status among subjects before and after intervention, the computed 't' value (2.38) was greater than table value (2.05) at 0.05 level of significance. There was statistically significant increase in the functional status of subjects after selected strengthening exercises ($p=0.05$). There was statistically significant increase in each parameters of functional status ie, Basic activities of daily living, Instrumental activities of daily living , psychological function and social function ($p=0.05$). There was no statistically significant association between functional status and sociodemographic, clinical variables ($p=0.05$). The present study demonstrated that selected strengthening exercises are effective in improving functional status among patients with Chronic Kidney Disease.

Keywords: Strengthening exercises, Functional status, Chronic Kidney Disease

INTRODUCTION

Functional status is an individual's ability to perform normal daily activities required to meet basic needs, fulfill usual roles, and maintain health and well-being (Kane, 2000). Reducing dialysis is associated with stepwise increases in rates of the following: functional limitations, which,

independent of the cause, are associated with increased mortality, hospitalization, and long-term care. The study of exercise in the ESRD (End Stage Renal Disease) population dates back almost 30 years, and numerous interventions, including aerobic training, resistance exercise training, and combined training programs, have reported beneficial effects (Johansen, 2004).

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MATERIALS AND METHODS

The research approach was quantitative-pre experimental. One group pre test – post test design was selected in order to assess the effect of selected strengthening exercises on functional status among 30 patients with Chronic Kidney Disease in selected wards of AIMS, Kochi. Subjects were patients with Chronic Kidney Disease undergoing dialysis, admitted in medical wards, AIMS, Kochi. Convenience sampling technique was used in the study. Tools used were structured questionnaires for sociodemographic data and functional status. After establishing a good rapport and clear explanation about the importance of the present study, tools were administered on day 1. The intervention was performance of selected strengthening exercises by each subject for 20 min twice a day in the morning and evening in the presence of the investigator from day 1 to day 13. Post test was done on day 13.

RESULTS AND DISCUSSION

Major Findings of the Study

- Mean functional status score of subjects was 71.10 before among performing selected strengthening exercises and it was increased to 76.97 after intervention (Figure 1). On comparison of functional status subjects before and after intervention, the computed 't' value Hence there was statistically significant increase in the functional status of subjects after selected strengthening exercises ($p=0.05$). (2.38) was greater than table value (2.05) at 0.05 level of significance.
- Pre mean scores of each parameters of functional status of subjects were 85.8 (Basic Activities of daily living), 71.37 (Instrumental

Activities of daily living), 64.2 (Psychological function) and 65.0 (Social function) respectively. Post mean scores of each parameters of functional status of subjects were 90.82 (Basic Activities of daily living), 75.78 (Instrumental Activities of daily living), 72.51 (Psychological function) and 70.89 (Social function) respectively (Figure 2). There was statistically significant increase in each parameters of functional status, i.e., Basic activities of daily living, Instrumental activities of daily living, psychological function and social function ($p=0.05$).

Figure 1: Component Bar Diagram Showing Mean Functional Status of Subjects Before and After Intervention

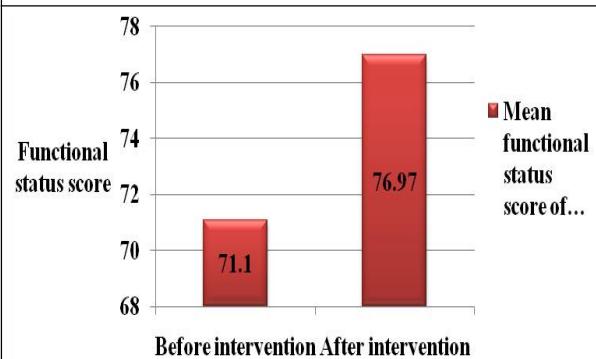
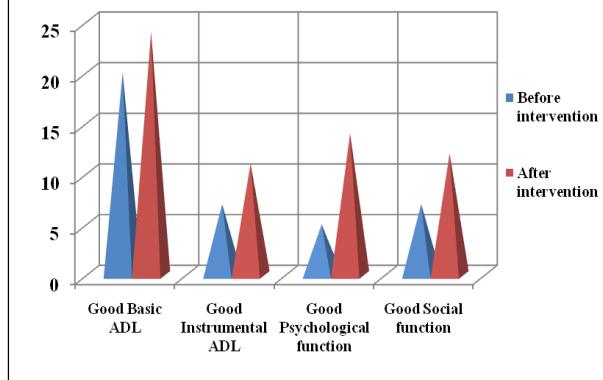


Figure 2: Pyramidal Bar Diagram Showing Frequency of Subjects With Good Zones of Basic ADL, Instrumental ADL, Psychological Function and Social Function Before and After Intervention



Other Findings

- Among 30 subjects, 27(90%) subjects had altered functional status before intervention and 19(63.3%) subjects after intervention. Majority of subjects were males ie, 24(80%). All 30 subjects were hypertensive and among them, 21 (70%) subjects had both Hypertension and Diabetes Mellitus. Among 30 subjects, 25(83.3%) subjects had no habit of exercise.

DISCUSSION

In the present study, the subjects performed selected strengthening exercises for two weeks. Pre test and post test functional status scores were calculated. On analysis, mean functional status score of subjects was 71.10 before performing selected strengthening exercises and it was increased to 76.97 after intervention. On comparison of functional status among subjects before and after intervention, the computed 't' value (2.38) was greater than table value (2.05) at 0.05 level of significance. So, it is concluded that there was statistically significant increase in the functional status of subjects after selected strengthening exercises ($p=0.05$).

This finding is supported by an experimental study by Mercer *et al* on effect of strengthening exercises on self-reported functional status of dialysis patients at Department of Exercise and Sport Science, Manchester Metropolitan University, Cheshire, UK. It showed that there was marked improvement in the functional status among those 40 subjects after performing strengthening exercises which was assessed at 2nd and 4th two week of data collection. It concluded that short term exercise schedule can improve activity of daily living-related functional capacity and self-reported functional status of

nonanemic and anaemic dialysis patients (Mercer *et al.*, 2002). The present study shows that there was no statistically significant association between functional status and sociodemographic variables such as age , gender and income ($p = 0.05$).

A cross sectional study done by Rajapurkar *et al.* (2012), "What do we know about chronic kidney disease in India: first report of the Indian CKD registry" depicts that there are no national data on the magnitude and pattern of chronic kidney disease (CKD) in India. Of the 52,273 adult patients, 35.5%, 27.9%, 25.6% and 11% patients came from South, North, West and East zones respectively. The results shows that the mean age was 50.1 ± 14.6 years, with M:F ratio of 70:30. Patients presenting to public sector hospitals were poorer, younger, and more frequently had CKD of unknown etiology (Rajapurkar *et al.*, 2012). This study findings are contradictory to the present study findings which may be due to small sample size.

The present study shows that there was no statistically significant association between functional status and sociodemographic variables such as education and occupation ($p = 0.05$). Investigator was not able to compare this study finding with any other studies since there is considerable lack of research studies in this concern.

The present study shows that there was no statistically significant association between functional status and duration of Chronic Kidney Disease ($p = 0.05$). Investigator was not able to compare this study finding with any other studies since there is considerable lack of research studies in this concern.

In the present study, the statistical association

between functional status clinical variables such as comorbidities and habit of exercise could not be done because of the insufficient distribution of subjects in terms of normal and altered functional status.

CONCLUSION

Based on the above study results and discussion it can be concluded that majority of patients with Chronic Kidney Disease were having altered functional status. Strengthening exercises were very effective intervention having a positive effect on functional status.

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