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Effect of structured teaching programme on post operative exercise in terms of knowledge and practice among patients with elbow surgery admitted in selected hospitals of Kolkata, West Bengal.

Orthopaedics

Chhanda Pal — M.Sc. Nursing (Orthopedic nursing speciality),Clinical Instructor, College of Nursing, National Medical College and Hospital, Kol-14.The West Bengal University of Health Sciences.

Prof. Smritikana Mani — R.N.R.M, M Phil Nursing,M.Sc. Nursing(Obstetrics and gynaecological nursing) Principal, College of Nursing, Medical College and Hospital, Kolkata-73. The West Bengal University of Health Sciences.

Ananya Bhakta — M.Sc. Nursing(Community health nursing speciality),UG Gold medalist, College of Nursing, Medical College and Hospital, Kolkata-73, The West Bengal University of Health Sciences.

Prof. Dr. Ananda Kisor Pal — Prof. & Head, Dept of orthopaedics and traumatology, IPGME & R, Kolkata, West Bengal.

ABSTRACT

Introduction : Following any surgery around elbow joint, the non affected joints outside the area of postoperative immobilization, like shoulder, wrist and finger joints undergo stiffness frequently. Therefore, an attempt has been made through this study to reduce the stiffness of those joints using the structured teaching programme having knowledge of specific exercises of those joints for postoperative patients.

Objectives: To find the effectiveness of structured teaching programme on knowledge and practice among patients with elbow surgery in selected hospitals, Kolkata.

Materials and method : A experimental research approach and pre experimental design was adopted for this study. Conceptual framework based on modified J.W. Kenny's (1968) General System theory model was adopted. Non probability purposive sampling technique was adopted.30 patients who undergone surgery around elbow joints were selected as per prescheduled selection criteria as a study subject .A valid and reliable structured knowledge questionnaire & structured observation checklist (r-0.83, r-0.92) was used for data collection. Informed consent was taken from the subject before the data collection.

Result : The study result showed that 47% of patients belonged to 15-24 years of age group. Majority 63% patient were belonged to male gender.43% that is the maximum number of patients were educated upto primary level of education. Majority of patient 37% were daily labour in their occupational status. Majority i.e.37% of patients were belonged to middle socio-economic status.

In knowledge area, there was a significant difference in pre-test knowledge and post-test knowledge score ('t' value 12.28 at $p<0.05$) .In practice area, there was a significant difference in pre-test practice and post-test practice('t' value 86.76 at $p<0.05$).So the structured teaching programme is effective in increasing the knowledge and practice of patients with elbow surgery. The computed chi square shows no significant association between pre-test knowledge level with selected variables.There was also no significant relationship was found between knowledge and practice in both pre-test and post test area.

Conclusion : In postoperative period after elbow surgery, the unaffected joints of upper limb require supervised exercises to maintain their normal mobility with the help of specific knowledge provided by structured teaching programme.

KEYWORDS:

Planned teaching programme, post operative exercise, Knowledge, practice, Patient with elbow surgery.

Introduction

Fractures around elbow joint are one of the commonest injuries in pediatric age group and require surgical intervention. Following surgery around elbow, stiffness occurs not only in elbow joints, but also in adjacent, shoulder, wrist and finger joints, due to several factors like non compliance of patients, inadequate post operative regime, and inadequate rehabilitation etc. Post operative stiffness of the elbow joints is the commonest factor responsible for their unsuccessful results .[1]

Fracture may require week and sometimes months to heal, so bed rest is often necessary for healing injured or disease parts of the body. However it is now well established that extensive period of bed rest can cause harm to the rest of the body. The most obvious effect of long periods of immobility is seen in the musculo skeletal system.[2]

Prolong immobilization and bed rest contributes to complication like joint stiffness which may lead to joint contracture, ligament tightening or muscle atrophy, and limitation of functions etc.[2] The first phase of rehabilitation, which extends for about the first 6 weeks after surgery, focuses on patient education that emphasizes wound care, control of pain and peripheral edema, and exercises to offset the adverse effects of immobilization while protecting repaired soft tissues that maintain the stability of the elbow.[3]

Active ROM is allowed within a week after exercises are initiated. However, majority of patients who underwent surgery over shoulder and elbow experience loss of motions also in unaffected joints (like shoulder hand syndrome) after initial period of immobilization in immediate postoperative period in spite of very successful operation and adequate rehabilitative protocol due to several factors like postoperative pain, unwillingness, lack of motivation, inadequate knowledge etc. Again, if one joint has loss of function it affects the functions of adjacent joint. In these situations, there is need of actual assessment of disability and provision of guidance to the patient by the nursing personnel to undertake comprehensive physiotherapeutic measures for recovery of preoperative functional status.[1]

Therefore, we attempted to detect the residual knowledge of such exercises and assessed the efficacy of a structured teaching programme consisting the required knowledge and directions of ROM exercises for postoperative patients to prevent stiffness of their upper limb joints.

Materials and methods

A experimental research approach and pre experimental design was adopted for this study. Conceptual framework based on modified J.W. Kenny's (1968) General System theory model was adopted. Non probability purposive sampling technique was adopted.30 patients who undergone surgery around elbow joints were selected as a study subject who underwent elbow surgery at and above 15 years of age, patients willing to participate in the study and those patients who could understand, read and write Bengali and English. Whereas , critically ill, uunconscious patients and poly traumatised patients were excluded from our study.The formal ethical permission was taken from the institutional ethical committee and the administration of the following settings I.P.G.M.E. & R. and N.R.S. Medical College and Hospitals and National Medical College and Hospitals. A valid and reliable structured knowledge questionnaire & structured observation checklist (r-0.83, r-0.92) was used for data collection. The planned Teaching Programme is an educational material consisting of information on the type, duration, frequency of range of motion exercises of the upper limb joints on prevention of stiffness of joints. The structured knowledge questionnaire was consist of 10 items covering these following terminology of the joint stiffness, meaning and purpose of full range of motion exercises, time and duration of the exercises, range of motion exercises of upper limb joints areas. The observation checklist consist of 64 items consist of post operative exercises, their time, number, duration and type of range of motion exercise such as shoulder exercise, wrist joint exercise, thumb joint exercise and finger joint exercise. The data was collected from 10/12/2013 to 28/01/2014.

Table 1 : The Study Design

Group	Pre-test		Treatment	Post test
30 Elbow Surgery Patients	Day of operation	Day 3 Assessment of Knowledge and Practice before administering structured teaching programme	Day 3 Structured Teaching Programme demonstration of post operative exercise of patients with elbow surgery	Day 10 Assessment of Knowledge and Practice after administering structured teaching programme

Results

The study result showed that 47% of patients belonged to 15-24 years of age group. Majority 63% patient were belonged to male gender.43% that is the maximum number of patients were educated upto primary level of education. Majority of patient 37% were daily labour in their occupational status. Majority i.e.37% of patients were belonged to middle socio-economic status.

n=30

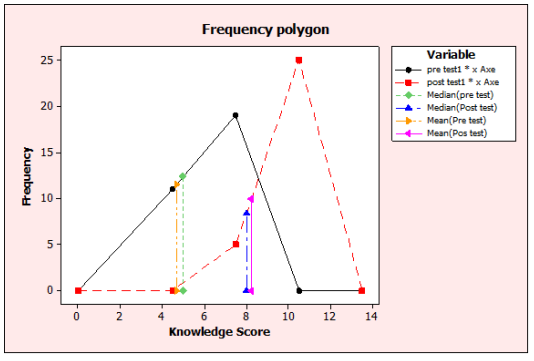


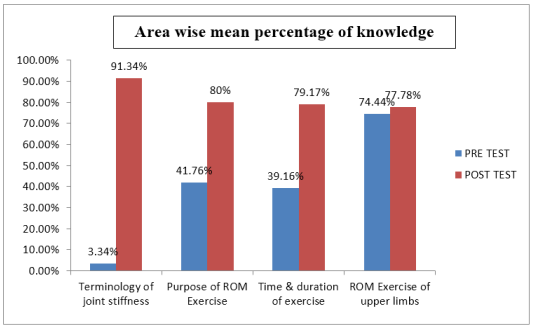
Fig 1: Frequency polygon showing pretest and post test knowledge scores.

Data presented in figure 2 shows that, the pre and post test score values were utilized to ascertain the mean, median and standard deviation. The significance of the values were further tested by ascertaining paired t test utilizing the mean differences of pre and post test values. The mean post test knowledge score (8.23) was higher than the mean pre test knowledge score (4.67). The median of post test knowledge score (8) was higher than the median of pre test knowledge score (5).

Further, the posttest Standard deviation score (0.82)seems to be less dispersed than the pre test Standard deviation score 1.47.

Figure 2: Bar diagram showing the Area wise Pre-test and Post-test of Mean Percentage of knowledge scores among patients.

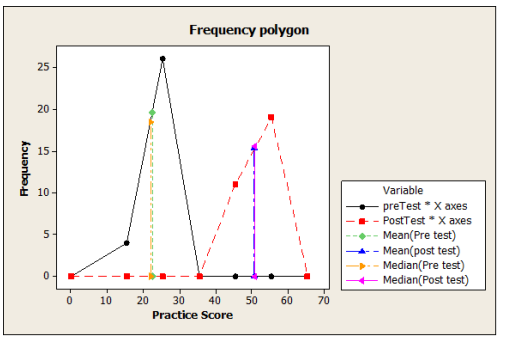
n=30



The data presented in figure 3 shows that the post test mean percentage score was higher in all areas of structured teaching programme on post operative exercise of patients with elbow surgery.

Figure 3: Frequency polygon showing pretest and post test practice scores

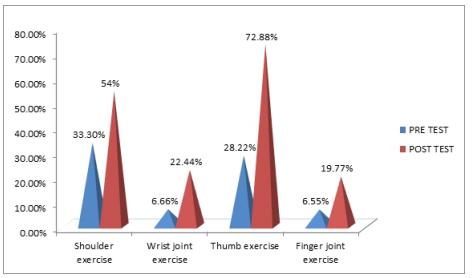
n=30



Data presented in figure 4 depict that the mean post test practice score (50.76) was higher than the mean pre test practice score (22.63). The median of post test score (51) was higher than the median of pre test practice score (22). Further, the posttest Standard deviation score (1.43)seems to be less dispersed than the pre test Standard deviation score 1.95.

Figure 4: Conical diagram showing Area wise mean pre-test and post test percentage of practice score among patients.

n=30



Data presented in figure 5, shows that the Pre-test and Post-test of Mean Percentage of practice scores in Different Areas. It depicts that the post test mean percentage score was higher in all areas of structured teaching programme on post operative exercise of patients with elbow surgery.

Table 2: Mean, mean difference, 't' value of pre-test and post-test knowledge score.

n=30

Area of score	Mean	Mean Difference	t' value
Pre-Test Knowledge score	4.67	3.56	12.28*
Post-Test	8.23		
Pre-Test Practice score	22.63	28.13	86.76*
Post-Test	50.76		

't' df (29) = 2.05, p < 0.05
't' df (29) = 2.76, p < 0.01

Data presented in table 2 shoes that, in knowledge score, the obtained 't' value (12.28) was higher than the table value 't'=2.05 at 0.05 level of significance. Therefore, post test knowledge score was proved to be higher than pre test knowledge score. In practice score, the obtained 't' value (86.76) was higher than the table value 't'=2.05 at 0.05 level of significance. So the structured teaching programme is effective in increasing the knowledge and practice of patients with elbow surgery.

Table 3: Chi square tests of association between the pre-test knowledge levels of patients with selected variables.

n=30

Sl. No.	Variables	Knowledge Score ≥Median	Knowledge Score <Median	Chi Square	Df	Significance at 0.05 level
1.	Educational Level	6	7	3.019	1	NS
	< Secondary	13	4			
	≥ Secondary					
2.	Gender	14	5	2.454	1	NS
	Male	5	6			
	Female					
3.	Occupation	8	5	0.170	1	NS
	Earning	11	6			
	Non-Earning					

Chi square df(1) = 3.84, p< 0.05
Chi square df(1) =6.64, p< 0.01

Data presented in table 3 shows that ,there is no significant association between pre test knowledge with selected demographic variables.

Table 4: Correlation coefficient and its significance between pre test knowledge score and pre test practice score of elbow surgery patients

n = 30

Variables	'r' value	p value (<0.05)
Pre test knowledge score & Pre test practice score	– 0.16	0.86
Post test knowledge score & Post test practice score	0.15	0.80
Pre test practice score & age	0.004	0.021
Pre test knowledge score & age	– 0.67	4.81

Data presented in table 4 show that correlation coefficient is computed to examine the relationship between pre-test knowledge and pre-test practice of the patients. There is negative correlation existing between two variables which is statistically not significant as evident from its corresponding 'p' value. There is no significant relationship between post test knowledge and post test practice score among the patients.

So, it could be concluded that the knowledge and practice of the patients of the present study are not interdependent. On the other word even in presence of knowledge, the practice skill remains deficient.

Conclusion

This pre experimental one group pre-test post-test research design concludes the STP comprising of ROM exercises is effective for improving the practice regarding the exercise of upper limb joints after elbow surgery. In postoperative period after elbow surgery, the unaffected joints of upper limb require supervised exercises to maintain their normal mobility with the help of specific knowledge provided by structured teaching programme.

Discussion

Best J.T. (2001)[4] conducted a study on effectiveness of teaching for the elderly and emphasized the fact that providing effective patient education is an essential part of every nurse's role. Elderly orthopaedic patients require additional education related to their specific functional and rehabilitation needs. Planning and implementing effective patient education for the elderly orthopaedic patient requires knowledge of adult learning principles and knowledge of the special learning principles and knowledge of the special learning needs and teaching methods that can be adapted for this growing population.

In this study the independent variable was structure teaching programme consisting of range of motion exercises of shoulder, wrist and finger joints. Structure teaching programme is an important tool for enhancement of knowledge and improvement of practice of postoperative exercises among patients, underwent elbow surgery.

Tseng CN, et. al. 2007 [5] conducted a randomized controlled trial study to evaluate the range-of-motion exercise programme at improving joint flexibility, activity function on 59 bedridden older stroke. Participants were randomly assigned to usual care or one of two intervention groups, and consisted of full range-of-motion exercises of the upper and lower extremities. The analysis reveals that, both intervention groups had statistically significance improvement in joint angles, activity function, compared with the usual care group (P < 0.05). joint angles in intervention group II were statistically significancely wider than in both the other groups (P < 0.01). The investigator concludes that, a simple nurse-led range-of-motion exercise programme can generate positive effects in enhancing physical function of bedridden older people with stroke.

In the study result shows that the teaching programme on range of motion exercise. was effective for enhancing the knowledge and practice of patients.

Gert D. Krischank, et. al. 2009 [6] conducted a randomized controlled cohort study to determine the effect of two different postoperative therapy approaches after operative stabilization of the wrist fractures on Volunteers (N=48) with fractures of the distal radius after internal fixation with locking plates. Treatment by a physical therapist with 12 sessions and an unassisted home exercise program. The results showed that, after a 6-week period of postoperative treatment, the patients (n=23) performing an independent home exercise program using a training diary showed a significancely greater improvement of the functionality of the wrist, ROM in extension and flexion 79% (P<.001) of the uninjured side. It was concluded that, in the postoperative rehabilitation of wrist fractures, instructions in a home exercise program are an effective alternative to prescribed physical therapy treatment.

In this study the result shows that there was a significant difference is present between pre-test and post –test knowledge score ('t' value

12.28 at p<0.05) and there was also a significant difference present between pre-test and post-test practice score ('t' value 86.76 at p<0.05).So. here the teaching programme was effective for enhancing the knowledge & practice of the patients.

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