

Quasi-Experimental Study to Evaluate the Effect of a Formal Teaching Intervention on Positioning of Patients After Stroke Aimed to Improve Nurses Knowledge and Practice

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Abstract: This paper presents quasi-experimental study to evaluate the effect of a formal teaching intervention on positioning of patients after stroke aimed to improve nurses' knowledge and practice.

Keywords: Quasi-Experimental Study, Formal Teaching

1. Introduction

Many people who have a stroke have problems with the arm and leg on one side of their body. Hearing and seeing may also be reduced on that side. The eye muscles may work extra hard or become fixed from always looking in the direction where there is no vision problem. Good positioning after a stroke can help treat problems with your affected arm, leg, and vision. It can also help prevent new problems from developing.

Stroke often causes paralysis of one or more of the muscles of your arm and leg on one side of your body. This is called hemiplegia. Or you may have a less severe condition called hemiparesis. This is weakness on one side of your body. One or more of these muscles might feel tight instead of weak. In general, stroke might increase or decrease the normal muscle tone in these muscles. A stroke can also lead to numbness or less feeling on the affected side of the body. This lack of feeling can lead to more problems, because it may make you less aware that a part of your body is out of alignment. This can lead to complications, such as chronic shoulder pain or partial shoulder dislocation. If you are unable to move a part of your body, this can lead to other problems such as pressure sores.

The effect of recommended positioning on outcome after stroke has yet to be evaluated. Furthermore, although nurses have been urged to help stroke patients maintain the positions regarded as therapeutic, little is known about their attention to this aspect of care in the lengthy intervals between formal sessions of rehabilitation. The limited available evidence suggests that patients are not consistently positioned according to the ideals suggested in the literature. It could be argued that this indicates that either the nurses' knowledge is insufficient or that their theoretical knowledge is not being translated into practice. An educational program could increase their

knowledge of and active participation in the positioning of patients in recommended ways. Unless an improvement in the positioning of patients is achieved, the role of posture in determining outcome after stroke cannot be investigated.

Researcher therefore conducted a quasi-experimental study to document the positioning of patients after stroke and to evaluate the effect of a formal teaching intervention aimed at improving nurses' knowledge and practice in this area. The following questions were posed: Does undertaking the teaching package improve nurses' knowledge about positioning patients following a stroke? Are patients who receive care from nurses who have undertaken the teaching package positioned in recommended ways more often than those cared for by nurses who have not?

2. Methodology

The design used for the current study was descriptive correlational in nature. Data were collected from selected Hospitals in Lucknow. 100 staff nurses selected as sample by convince sampling technique. The setting was Career and GCRG medical college hospitals in Lucknow. Baseline descriptive data were collected from each nurse. These comprised age, gender, grade, number of years qualified, length of time in current post, experience in the field of stroke care, level of education, and completion of relevant post registration study. In addition, their perceived quality of the ward as a learning environment and their level of job satisfaction were assessed with use of visual analogue scales. Nurses' knowledge of issues relating to stroke patient positioning was assessed using 2 questionnaires developed for the study. One focused on moving and positioning stroke patients and the other on the terminology used to denote posture. Each had a potential score of 20. All patients admitted after a stroke and with a hemiplegia were invited to participate in the study during the first week of their admission to the ward. Written informed consent was sought from all patients or their caregivers, and the study had the approval of the ethics committees.

A. Patient data

Data on the patients' positions were collected repeatedly by a single observer using an observational schedule developed and tested in an earlier study. The schedule requires observation of 19 aspects of posture thought to be important in influencing the return of normal movement after a stroke and records in 1 of 4 positions: sitting, lying supine, or lying on affected or unaffected side. Patients were observed at intervals throughout their stay according to their availability, pilot work having indicated that rigid scheduling of observations was not feasible in these clinical settings. Where multiple sets of observational data were collected on individual patients in any 1 day, these were made at intervals of at least 30 minutes.

B. Data collection

Baseline data were then collected from all nurses, and 20 patients were recruited, assessed, and observed repeatedly throughout their stay. Nurses in the experimental group then received the teaching intervention, following which both questionnaires were re-administered to all nurses. A further sample of 20 patients was recruited from all wards, assessed, and observed. Finally, nurses were asked to complete the questionnaires at 3 months after intervention. The following 4 patient groups were produced: group E Pre, baseline experimental; group C Pre, baseline control; group E Post, post teaching experimental; and group C Post, post teaching control.

3. Results

One hundred nurses were initially included in the study. There were 50 nurses in the experimental group and 50 in the control group. A statistically significant difference ($P < 0.01$) was found between the groups in nurses' perceived quality of their ward as a learning environment, with the experimental group rating this more positively. The groups were similar in all of the other personal characteristics considered.

For the questionnaire exploring nurses' knowledge of the terminology used to denote posture, the median scores at baseline were identical. Immediately after the teaching, the median score for the experimental group increased whereas that for the control group remained the same, representing a significant difference ($P < 0.05$). Three months after the teaching, however, the median score for the control group increased. Although the median score for the experimental group also increased slightly, the difference between the groups' scores was no longer significant.

For the questionnaire dealing with knowledge of moving and positioning stroke patients, the median scores in both groups increased over time, but, overall, the nurses in the experimental group scored significantly higher than those in the control group both immediately after the teaching ($P < 0.001$) and 3 months afterward ($P < 0.005$).

Scores of the Experimental group on the "moving and positioning" questionnaire showed a significant difference between the groups at baseline ($P < 0.005$), with the

experimental group producing the higher median score. Both groups improved their median scores at the post teaching assessment point, but the experimental group continued to score higher ($P = 0.0001$). In both groups these improved scores were maintained 3 months later.

During the preintervention phase there was no significant difference between the experimental and control wards in the proportions of correct positions within each set of observations. Patients in group E Pre were positioned correctly for a median of 55.6% (range, 17.6% to 100%) of the aspects of posture within each set and those in group C Pre for a median of 57.9% (range, 16.7% to 89.5%;). After the teaching, a small but highly significant improvement ($P < 0.0005$) in the proportions of correct positions within each set of observations was found on the experimental wards (group E Post), with the median percentage increasing to 61.1% (range, 15.8% to 94.7%;). In contrast, positioning in the control group in the post teaching phase (group C Post) showed a significant deterioration ($P < 0.05$), with the median percentage of correct positions falling to 48.7% (range, 20.0% to 84.2%;).

The percentages of individual aspects of posture observed as correct are shown in Table 2. Again, groups E Pre and C Pre were comparable. Group E Pre scored significantly higher than group C Pre for 4 aspects of posture (trunk: rotation [$P < 0.001$], shoulder: protraction [$P < 0.001$], shoulder: abduction [$P < 0.01$], and forearm: pronation [$P < 0.05$]), and Group C Pre scored higher for 5 aspects (head: lateral flexion [$P < 0.05$], head: rotation [$P < 0.01$], trunk: lateral flexion [$P < 0.05$], shoulder: flexion [$P < 0.01$], and wrist: flexion [$P < 0.05$]).

Comparison of groups C Pre and C Post revealed no improvement on the control wards in the post teaching phase, with group C Post scoring significantly higher than Group C Pre for only 1 aspect of posture (thumb: abduction [$P < 0.05$]). In contrast, when compared with group E Pre, the experimental wards (group E Post) scored significantly higher after the teaching intervention on 8 aspects of posture (head: lateral flexion [$P < 0.05$], head: rotation [$P < 0.0005$], trunk: lateral flexion [$P < 0.0005$], elbow: flexion [$P < 0.0005$], forearm: pronation [$P < 0.0005$], wrist: flexion [$P < 0.0005$], hip: rotation [$P < 0.0005$], and hip: abduction [$P < 0.0005$]). Group E Post also scored significantly higher than group C Post for 6 aspects of posture (trunk: rotation [$P < 0.0005$], shoulder: protraction [$P < 0.0005$], forearm: pronation [$P < 0.0005$], wrist: flexion [$P < 0.0005$], hip: rotation [$P < 0.025$], and hip: abduction [$P < 0.0005$]).

Overall, an improvement in patients' posture after the nurses had received the teaching was demonstrated. However, even after the teaching the percentage of correct positioning remained variable on the experimental wards, ranging from 33.7% (for thumb: abduction) to 87.9% (for forearm: pronation).

4. Discussion and conclusion

Our study has identified the presence of poor positioning on

both stroke rehabilitation units and general wards. The results also indicate that nurses' practice in the positioning of stroke patients can be improved through a formal teaching intervention. However, the educational package tested in this study did not effect improvement in all of the aspects of positioning thought to be important, and some of the improvements obtained were fairly small. Overall, therefore, there is scope for further enhancement of nurses' practice in this potentially important aspect of care. Overall, the results of our study indicate that it is possible to effect a degree of change in both nurses' knowledge of and their practice in the positioning of stroke patients through the use of a formal teaching intervention. However, there remains much room for improvement. It is imperative that such improvement is achieved; without access to a group of patients who are consistently positioned well, research evaluating the effect of positioning on outcome after stroke cannot be undertaken. The findings of this study highlight the need for further consideration of how nursing practice may be influenced.

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