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Role of Physiotherapy and Nursing in Multidisciplinary Team in Stroke Rehabilitation

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Abstratct – Physiotherapist and Nurses are the largest professional workforce working with stroke survivors. However, the study of physiotherapist and nurses' role in subacute post-stroke rehabilitation is sparse. The objective of this study was to describe the experienced roles of physiotherapist and nurses during subacute rehabilitation of stroke survivors. Physiotherapist and Nurses integrate rehabilitation principles in routine care thus make an important contribution to post-stroke rehabilitation in subacute settings. However, physiotherapist and nurses lack training in post-stroke rehabilitation, which limited their roles and functions in the subacute rehabilitation of patients with stroke.

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INTRODUCTION

Stroke is the third most common cause of death. It accounts for 11 per cent of all deaths and represents the largest cause of adult disability. Cerebral infarction causes about 85 per cent of strokes with the remaining 15 per cent being due to primary haemorrhage and subarachnoid haemorrhage (10 and 5 per cent respectively) (Intercollegiate Stroke Working Party, 2012). Following a first stroke, risk of recurrence is 26 per cent within five years and 39 per cent by 10 years (Mohan, et. al., 2011). Stroke can have a profound effect on patients, their spouses and other family members. In addition to impairment of upper and lower limb function and mobility, consequences can include cognitive, communication and visual field disturbances, role and relationship changes, psychological distress and the challenge of coping with long-term disability.

Distinction between the role of the occupational therapist and physiotherapist appears to have reduced in some areas of clinical practice, giving rise to mixed feelings among therapists in both professions. Although definitions of occupational therapy and physiotherapy (College of Occupational Therapists (COT), College of Speech and Language Therapists (CSLT), Chartered Society of Physiotherapy (CSP) 1993) suggest that the professions are approaching therapeutic intervention from different perspectives, recent changes in healthcare and the needs of patients have resulted in the two professions moving closer together in some clinical areas (Brown & Greenwood, 1999).

One clinical field where extensive role overlap and collaboration does occur is rehabilitation (Chartered Society of Physiotherapy, 1988). Bukowski (Bukowski, et. al., 1986) suggest that the complex healthcare needs of stroke patients make them "particularly amenable to an interdisciplinary team approach." Therapists from both occupational therapy and physiotherapy however, argue that although "considerable overlap is acceptable, duplication is not" (College of Occupational Therapists and Chartered Society of Physiotherapy Development Groups, 1988).

A person with an appearance that does not fall within what are considered socially acceptable limits may be stigmatized and isolated, and eventually develop psychological problems because of this social stigma. A similar fate may await a person who has suffered a radical change in appearance because of an accident. Loss of limbs or loss of their use, wounds, and disfigurement of the skin are all related to change in appearance.

Nursing has a triple aim. First, it aims at rehabilitation of their health and the restoration of the use of their body. The second aim is restoration of the patient's good standing and reputation, while the third aim is psychological rehabilitation. If nurses are to help patients effectively, they must be aware of the importance to patients (Bermudez, et. al., 1998).

Nurses have a key and essential role in providing the care for these complex patients. Nurses are uniquely placed to spend time communicating with the patient and carers and finding out about a patient's pre-injury or pre-confusion state. Pressure care is essential and ward nurses will continue and expand on the initial care delivered. Patients may already have a pressure area problem from prolonged lying on the floor following a fall, may be malnourished and/or dehydrated, and have pre-existing poor mobility e all leading to increased risk (Riemen & Hutchison, 2016). Patients often do not achieve their required nutritional intake. Poor nutrition is a risk factor for poor wound and fracture healing. Prolonged repeated fasting times can be detrimental to health and rehabilitation, and nursing staff are excellently placed to liaise with surgical and anaesthetic staff to minimize pre-operative fasting times (Bukowski, et. al., 1986).

Nurses coordinate and accompany the patient's journey of care, liaising with other specialties, facilitating rehabilitation, discharge and follow up planning. Having a member of staff who provides continuity and communication with everyone including the family is invaluable, particularly in an era of junior doctor shift work and the loss of the medical team structure (British Orthopaedic Association, 2007).

This paper presents the findings of a study designed to examine the concept of role overlap among physiotherapists, occupational therapists and Nursing- working in in-patient Multidisciplinary rehabilitation. The aim was to obtain therapists' views concerning role overlap, as a means of informing the discussion surrounding this development and thereby contribute to a debate which is crucial to all of the health professions. The research design was based on a conceptual framework (Jenson 1989) (Walsh, 2001), which incorporated key concepts identified in the literature review and employed semi-structured interviews as the primary means of data collection.

Table 1- The 12 key indicators of stroke care (Intercollegiate Stroke Working Party, 2012)

• Patient initially admitted to a stroke unit
• Discussion with the patient about their diagnosis
• Patients treated for 90% of stay in a Stroke Unit
• Screening for swallowing disorders within 24 hours of admission
• Brain scan within 24 hours of stroke
• Commenced aspirin by 48 hours of admission
• Physiotherapy assessment within first 72 hours of admission
• Swallowing assessment by a speech and language therapist within 72hours of admission
• Assessment by an occupational therapist within four working days of admission
• Rehabilitation goals agreed by the multidisciplinary team within five days of admission
• Patient weighed at least once during admission
• Mood assessed by discharge

Aim

The aim of this short communication is to summarize, illuminate and debate Physiotherapy and nursing input during the acute and rehabilitation phases after stroke.

Stroke multidisciplinary team:

The team of staff looking after stroke patients is called the multidisciplinary team(MDT). The multidisciplinary team comprises of doctors, nurses, occupational therapists, physiotherapists, dieticians, speech and language therapists, neuropsychologists, stroke liaison sister, family and carer support worker, stroke specialist nurse and care managers. This is a short description of who they are and what they do.

The **physiotherapist** aims to re-educate movement, sensation and balance in order to enable the patient to reach their potential for recovery of mobility and independence.

The **occupational therapist's** role is to assess the individual's ability to participate in activities of daily living such as personal care, kitchen tasks and ability to manage in the home environment They provide therapy to support both physical and cognitive (thinking) difficulties.

A **speech and language therapist** assesses all aspects of communication and will advise how best to help the patient and their family. They also assess difficulty with swallowing, and advise on the most appropriate way to keep a patients swallow safe.

A **dietician** explains how food can help post stroke, assessing nutritional requirements for each individual depending upon their needs. They support the team in assessing for tube feeding when appropriate; and can discuss the role of nutrition in secondary and primary prevention. The

aim is that food should remain enjoyable for all concerned

A **clinical neuropsychologist** sees people who are having problems with their thinking, emotions or behaviour after a stroke or other neurological condition. They will complete assessments and may carry out therapeutic interventions or advise on rehabilitation strategies to help people cope better.

A **stroke liaison sister** provides support and advice to patients and their families regarding a patient's diagnosis and their care needs, secondary prevention and rehabilitation, within the hospital setting. They support the team with complex issues, such as discharge planning or mental capacity issues.

A **care manager** can advise on services to provide personal care, domestic help, respite care, meal services and benefits

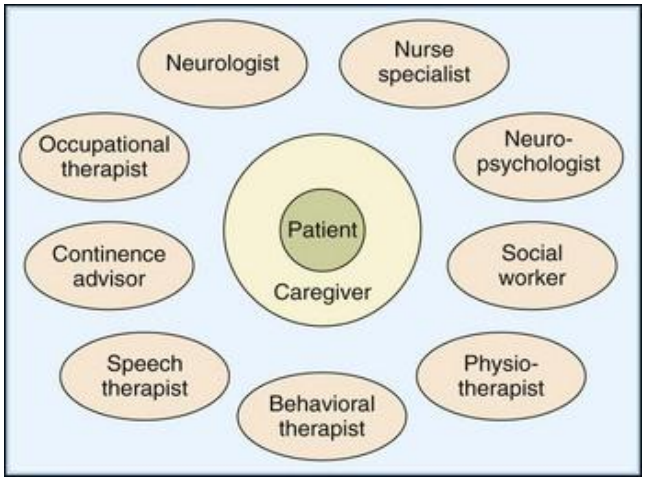

Figure 1 The multidisciplinary team involved in looking after Stroke.

Accident and emergency (A&E):

At the start of the patient's journey through the hospital system, their initial management lays the foundation for subsequent care. Rapid assessment and first line investigations for patients suffering a Stroke can identify other injuries and medical conditions early. patients attending A&E to have all of the "Big Six" interventions carried out e analgesia prescribed, NEWS score recorded, pressure areas assessed, intravenous/oral fluids prescribed (as clinically appropriate), bloods taken, and cognition screening performed. Every member of the team, and allowing for documentation to avoid duplication. Several hospitals have also successfully introduced fast-tracking of Stroke patients through A&E; however it is important that good clinical care should not be prejudiced by an dministrative "tick box" drive to achieve an arbitrary standard.

Nurses, auxiliary nurse and advanced nurse practitioners

Nurse caring for stroke patients involves multitasking as the condition itself is quite complex and challenging. In this light, many nurses, ranging from staff nurses to more advanced clinicians such as Nurse Practitioners (NPs) and Clinical Nurse Specialists (CNSs) are directly involved in improving patient outcomes. NPs and CNSs are clinicians who have undertaken expert relevant educational programmes to postgraduate level. Thus, the role of these experts within the greater healthcare team is to improve standards of patient care within a higher level of accountability and professional autonomy.

They also may devise and implement a personalised plan of care after an initial assessment (Jensen, 1989). Generally, nursing interventions during the acute stages following a stroke aim at preventing secondary brain injury (intracranial hypertension), maintaining the airways (due to paralysis of the pharynx muscles), providing general body support (vital signs, fluid and electrolyte balance) and anticipating the occurrence of complications (atelectasis, pneumonia). On admission to the ward, a general assessment of the patient's condition should determine his/her baseline neurological status and appropriate positioning, whilst identification of level of consciousness should be carried out immediately, as it is one of the most sensitive indices of neurological status (Granitto & Galitz, 2008).

Physiotherapy:

All guidelines recommend physiotherapy assessment and exercises after admission of the patient and then follow up patient at least once a day daily.

Aims of Physiotherapy in Hospital

- **Prevention of Complications** - Respiratory treatment, mobilization and activity, with the objective of minimizing complications resulting from the operation, anesthesia or immobility. Additionally, the treatment contributes to the prevention of deterioration and/or exacerbation of the pre-hospitalization medical condition.
- **Promotion of Function and Mobility** - Activation, strengthening and mobilization of the patient in order to enable resumption of maximal function and independence, using accessories if needed.
- **Functional Assessment** - Carrying out a functional assessment to recommend an appropriate framework for further treatment

and promote the continuum of care, including rehabilitation.

- **Advice and Instructions** - Instructions for independent exercises and activity, to shorten the duration of recovery and promote general health.

- **Rehabilitation Hospitals**

In rehabilitation hospitals, physiotherapy focusses on improving the patient's functional status, with an emphasis on restoring functional independence to the extent that is possible. Towards the completion of the period of rehabilitative hospitalization, the functional assessment is repeated in order to recommend an appropriate framework for further treatment and promote the continuum of care, in the community or in an a care facility.

During Spasticity Management-

- Hot Packs on the affected Muscle for 15 minutes after checking sensation integration.
- Passive Range of Motion for affected joints.
- Strengthening exercises for the joint around affected muscle.

To improve activity in daily living-

- Joint range of motion for the affected joint.
- Functional exercises like sit to stand techniques.
- Gait retraining with assistive device like Gutter or Zimmer frame.
- In progression gait training is given with Cane.
- Encourages the patient to participate with care giver.
- Teaching care giver to do exercise at free time.

Case report

CASE DESCRIPTION:

Subjects:

The patient was 28 year-old from Saudi Arabia, had cerebro vascular accident leading to Lt. sided hemiparesis 6 months ago, and admitted to ICU. He was treated conservatively, then after that transferred to normal ward for active rehabilitation program. He had endured a significant amount of rehabilitation during this period to regain knee range of movement, lower limb strengthening, control and power. His ultimate aim was to improve ROM of Lt. knee Joint, decrease muscle Hypertenocity on Lt. side of his body and improve sitting Balance (Statically & Dynamically)

Assessment:

He came to PSMMC, rehabilitation department and was assessed by Chief PT AbdulKarim S.Al-Humaid's team. Long period of recovery required, he found it difficult to regain his pre-accident strength.

1) Sensation: Normal Sensation (Heat & Cold) all over his body.

2) ROM: Normal ROM of Rt side of his body, but limitation in ROM of Lt knee Extension (-30), Lt hip joint was within normal limit, Ankle was limited in Dorsiflexion up to 90 degrees because of Hypertenocity.

3) MMT: For the Normal Side was 5/5 on MMT, and for the Lt. L.L was 2/5 on MMT, may be because of Hypertenocity and Lt. UL 0/5 and sever Hypertenocity.

4) Functional Status: patient was able to Roll from side to side with moderate Assist From a person, was required Max. Assistance specially when he turns from Supine to Rt.

5) Poor in sitting Balance (Static & Dynamic) in Short & Long Sitting Positions.

6) Main problem(s): the main problem was patient's overweight, so hard to move him in bed by one person, he needs at least two person to do so.

Using this data we ensured that he continued with decreasing hyper tonicity, strength training, functional training and gait training to improve overall Lt. LL strength.

Treatment:

Mr. Humaid supervised throughout rehabilitation protocol, Patient was seen daily for an hour, time might extend based on his tolerance.

Rehabilitation programme:

Plan of treatment:

1) The Short Term Goal(s) were

a) Improve ROM of Lt. knee Joint

b) Decrease muscle Hypertenocity on Lt. side of his body.

c) Improve sitting Balance (Statically & Dynamically)

2) Treatment;

a) Hot packs on Spastic and Tight muscle (Hamstring Mainly) for 15 mints

b) Passive ROM for affected part after hot Packs.

c) Sitting Balance Ex's After achieving our Goal, we started to improve his functional levels, we reached to level of

d) Sit to stand Technique.

e) Standing Balance Ex's

f) Gait retraining.

2) When we reach to level of Gait training, Patient was able to Walk with gutter frame for short Distance under close supervision, we did a demo to the nurses in the ward and requested them to practice the same after working hours. By practicing this we showed the INTER-DISPLENARY TEAM implementation.

Occupational therapy:

Occupational Therapists in our unit work closely with their physiotherapist colleagues to assess and educate patients regarding safety with transferring, washing and self-care. When needed they can provide aids or organize home modifications to facilitate safety and independence at home. Ideally, the occupational therapist should visit and assess patients in their own home. When it is not possible, they have to rely on relatives for information, such as the height of furniture at home, and perform assessments such as a kitchen assessment in the hospital. One traditional aspect, the role of providing patients with an "occupation" during their hospital or rehabilitation time, has long since disappeared. Staffing levels and infection control measures limit the options available on how to occupy the patient's time in hospital. Despite these restrictions, some more recent initiatives, such as the use of therapy pets, have proved very popular with patients.

Primary care:

General Practitioners are another easily forgotten resource. They know the patient before their injury and will continue to care for them once discharged back into the community. Communication is a key, and the availability of the electronic Emergency Care Summary Record on admission of the patient has been an important development (Morris, et. al., 2012). Similarly, on discharge, clear and accurate summaries are vital for patient's transition back into the community. To avoid duplication or errors of failed follow up, it is essential to include clear information on specialist reviews, investigation and management recommendations.

Early supported discharge:

Many units now have discharge coordinators and early supported discharge teams. Often these are invaluable points of contact with families (Macleod, et. al., 2005). Discharge coordinators strive to achieve a seamless transition and progression in the patient journey, but may be constrained by the availability of care and rehabilitation facilities, equipment, district nurses and ultimately theatre space. If any of these are lacking, the patient's journey is halted. It should be borne in mind however that a quick, early discharge home may not always be in the best interest of the patient.

Falls prevention programme:

Falling is one of the most common complications in stroke patients. It is very important to determine falling risk and to take necessary precautions on time because falling causes daily life activities to be restricted and results in fractures at a rate of 23%–50% (Cho, et. al., 2015). It has been reported that 14%–65% of stroke patients fall during their hospitalization and 37%–73% fall at home within the first 6 months after being discharged; this rate is 36% in chronic patients (Pinto, et. al., 2014, Czernuszenko & Czonkowska, 2009). Falls in the hospital mostly occur in the first week and particularly at night. Falls after being discharged from the hospital are frequently seen within the first 2 months. It has been observed that falls in hospitalized patients frequently occur during transfers to chair, bathroom, and toilet and while turning in bed (Pinto, et. al., 2014). Risk factors for falls in hospitalized patients include mobility and balance problems, confusion or agitation, incontinence, a previous history of falls, use of sedatives and antihypertensive drugs, aphasia, disturbed spatial perception, and severe neurological loss. In contrast, risk factors for falls in stroke patients after discharge include disturbed balance, dependence in daily activities, neglect phenomenon, depression, multitasking (such as speaking while walking), and jumping (Czernuszenko & Czonkowska, 2009). Predicting falling risk in stroke patients in advance and taking necessary precautions are included in our rehabilitation goals. Accordingly, some studies have been performed on the usability of various scales for estimating falling risk in stroke patients. Based on the results of these studies, it can be

suggested that Falls Efficacy Scale (FES) (Park &Choi, 2015).

Stroke Assessment of Fall Risk (Breisinger, et. al., 2014), Fall Risk Assessment Tool (FRAT) (developed for the elderly population) (Nandy, et. al., 2004), or Tinetti Performance oriented Mobility Assessment (An, et. al., 2014) can be used for estimating falling risk. Of these scales, FRAT is particularly appropriate for our routine evaluations because it is easy to use, allows multidirectional assessment, and offers corrective suggestions. On the other hand, FES has been found to be a simple and valuable scale because it predicts falling risks within the first 6 months after discharge according to the values obtained in the first month (Jalayondeja, et. al., 2014).

Benefits of multidisciplinary team care:

There is unequivocal evidence of improved outcomes when patients are treated in a stroke unit by multi -disciplinary teams (Stroke Unit Trialists' Collaboration, 2007). When compared with conventional care, organised inpatient stroke care resulted in long-term reductions in death, dependency and the need for institutional care. There is also good evidence that ESD teams facilitate earlier discharge to the home, increase the likelihood that patients will regain independence in activities that support daily living, and result in fewer patients requiring long-term institutional care (Langhorne & Holmqvist, 2007). These outcomes are associated with established stroke unit or ESD team services, employing stroke skilled professionals who collaborate through regular multidisciplinary team meetings and have clearly defined stroke care pathways within the wider context of hospital or community care services. Policy makers expressly link improvement in quality of patient care with team-working. In the National Stroke Strategy (Department of Health, 2007), six out of 20 quality improvement markers focus on co-ordinating rehabilitation professionals' specialist skills and knowledge. Given the complexity of response to and recovery from neurological injury following stroke, it is self-evident that health professionals with specialist skills should work together to bring to bear their collective knowledge and skills for the benefit of patients. Stroke multidisciplinary teams are larger than many healthcare teams, so co-ordination and effective collaboration is important.

Reported benefits of effective multidisciplinary team working include more patient-centred decision making (Opie, 2000), a reduction in the fragmentation of care and increased staff satisfaction, as well as more efficient and effective use of resources. However, policies, guidelines and research evidence do not themselves bring about change in health professionals' behaviour; there has to be a commonly understood purpose and perceived or actual benefit at the individual and organizational leve (Kilbride, et. al., 2011).

Clinical pathways:

Clinical pathways are designed to facilitate multidisciplinary team working. Through a description of the expected interventions and outcomes along the patient journey following a stroke, everyone knows the next step; unnecessary variations in practice can be avoided (Chudyk, et. al., 2009).

CONCLUSION:

Ultimately, patient-centred multidisciplinary care, extending beyond the hospital setting, provides the best outcomes and measures healthcare effectiveness beyond just the care of stroke patients. While we have now recognized that good multidisciplinary team work and care is essential for these patients, aspects of interventions undertaken throughout the care pathway need a more structured assessment though randomized controlled trials.

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