

INCIDENCE OF SHOULDER PAIN POST STROKE

INCIDENȚA DURERILOR DE UMĂR DUPĂ ACCIDENT VASCULAR CEREBRAL

Priti Rajak¹, Deepali Hande², Neesha Shinde³, Subhash Khat⁴, Nitesh Kathariya⁵

Key words: stroke, shoulder pain, disability

Cuvinte cheie: accident vascular cerebral, durerea umărului, disabilitate

Abstract:

Stroke is a disabling, depressive and a long term disorder.

Aim. This study was aimed to find out incidence of shoulder pain in participants after an attack of stroke.

Material and Method. All the participants were admitted in Pravara Rural hospital at the time of this study. Overall 124 participants were screened and then put through with inclusion-exclusion criteria and permission process, of which only 96 participated in the study. Out of these 96 participants, almost 55% suffered from post stroke shoulder pain.

Results. The results also state, majority of them having moderate pain with no effect of frequency of stroke attack on it.

Conclusions. Thus, it can be concluded that based on this prospective study, post stroke shoulder pain is fairly common and is most of the times of moderate intensity; independent of number of stroke attacks.

Rezumat:

Accidentul vascular cerebral (AVC) este o afecțiune invalidantă, depresivă, de lungă durată. **Aim.** Studiul de față își propune să stabilească incidența durerilor de umăr la pacienții aflați după un AVC.

Material și metodă. Toți participanții au fost internații la Spitalul Pravara Rural pe perioada studiului. Au fost selectați 124 de subiecți, iar apoi, în urma selecției pe baza criteriilor de includere-excludere, doar 96 au rămas în studiu. Din acești 96 de participanți, aproape 55% au acuzat dureri de umăr după AVC.

Rezultate. Rezultatele demnstrează că majoritatea subiecților luați în studio au acuzat dureri moderate de umăr, fără a fi influențată de frecvența AVC-ului.

Concluzii. În concluzie se poate afirma, pe baza rezultatelor acestui studio, că durerea de umăr consecutivă AVC este destul de frecventă și de obicei este de intensitate moderată și independent de numărul accidentelor vasculare cerebrale.

Introduction

Stroke or brain attack is a sudden loss of neurological function caused by interruption of blood flow to brain.[1] It is the 3rd leading cause of death in America. Per year about 22% men and 25% women die within one year of stroke with rates increasing above 65yrs.2 of age. It also includes 28% attacks in age group below 65 yrs. While 14% who survive initial stroke or transient ischaemic attack experience one within one year. [2] Ischaemic stroke is the most common type affecting 80% individuals. Others include haemorrhagic stroke, lacunar stroke and transient ischaemic attack. [3]

Of the patients with stroke, haemorrhagic stroke accounts for largest number of deaths with mortality rate of 38% at 1 month while ischaemic stroke has mortality rate of 8 to 12% at 1

¹ Post Graduate student, Cardio – Respiratory Physiotherapy, College of Physiotherapy, PIMS, Loni. India

Corresponding author: dr.pritirajak@gmail.com

² Asso.Prof. Dept. of Community Physiotherapy, College of Physiotherapy, PIMS, Loni . India

³ Asso.Prof & Head of dept. of Cardio – Respiratory physiotherapy, PIMS, Loni. India

⁴ Prof. & Principal, College of Physiotherapy, PIMS, Loni. India

⁵ P.G. Dept. of Anaesthesiology, Rural medical college, PIMS, Loni. India

month. [4] Clinically in any type of stroke attack a wide variety of features are pictured including changes in level of consciousness with impaired sensory, cognitive, motor, perceptual, and language functions. [5] To be stamped as stroke, neurological symptoms must last for at least 24 hours. The motor deficits represent themselves as weakness termed hemiparesis while paralysis is termed hemiplegia. Stroke is the most common cause of chronic disability as records prove that one third of total population will be functionally dependent after one year. [3,5]

Loss of voluntary movement and immobility contribute to decrease range of motion, contractures, disused atrophy and muscle weakness. [6] These signs are early and too prominently reflected in shoulder reflected as pain, restricted flexion, abduction and external rotation. Other related factors include spasticity, right hemispheric cerebrovascular lesion. [7]

Left hemiplegia, sensory abnormalities, diabetes mellitus and low Barthel index score.

Many synonyms are available for shoulder signs especially pain, shoulder pain in hemiplegia, hemiplegic shoulder pain and post stroke shoulder pain. [8]

Shoulder pain interferes with the rehabilitation and contributes to increased hospital stay along with depression and decreased quality of life. Recovery from shoulder pain may occur in 80% of patients. [8] However, stroke is a very disabling and psychologically damaging condition, occurring without prior notice. It has many complications of which shoulder pain is one. [9] The cause of shoulder pain is notified to factors such as, reduced muscle tone and lax ligaments and capsule which increase the chances of shoulder subluxation leading to pain. [9]

The second cause is attributed to disuse of joint by patient and its prolonged immobilization leading to tightness and contractures, ultimately pain on movement. The third cause commonly dealt with is impingement of tendons in the shoulder joint causing pain. [10]

The knowledge of its quantitative existence and intensity in patients will help take adequate measure to reduce its incidence and aid its proper management and early management.

The study undertaken will thus help highlight the knowledge of its quantitative existence and intensity in patients which will help take adequate measure to reduce its incidence and aid its proper and early management. The study will help reduce prolonged hospital stay caused by it and thus save money, energy and time spent treating it. Since this is a disabling and makes the patient more dependent on others, precautionary management of the same will aid in rehabilitation and reduce depression of the patient who has/ is suffering from stroke.

With the above points in mind this study will aim to find out about the incidence of shoulder pain in participants after an attack of stroke. It will also keep in account the intensity of pain, male to female preponderance, relation between number of stroke attacks and Visual Analogue Scale score.

Methodology

Type of study: Prospective study

The method used to collect data is a simple personal interview based on a general questionnaire. Prior to any contact with the patient the prescription of the physician and an explanation of the study, questionnaire and an informed written consent was obtained from both the participant and a relative.

Inclusion criteria:

Minimum 1 attack of stroke

Participant must be able to communicate either verbally/ via eye movements/ facial expression/ some other understandable method

Participant must be admitted in the hospital

Exclusion criteria:

Paediatric patients

Medically and Psychologically unstable participants

Participants who are unable to communicate

Those who are not willing to participate

Materials used:

A general Questionnaire

Visual Analogue Scale

Physical testing techniques: Passive movements (Based on need)
Active movements (Based on need)
Active assisted movement (Based on need)
Calibrated Sphygmomanometer
Paper/Pen/Writing board/ Stationary

People involved in the study: Participant
Family member
Nurse
Physiotherapist

Procedure

The participant is personally interviewed by the therapist after assuring his/her fitness and willingness. Direct simple questions are asked in an understandable manner to avoid undue stress and confusion, while noting the answers. Visual Analogue scale is used for rating the shoulder pain quantitatively.

A Visual Analogue scale is a simple numerical scale. It consists of a 10cm long calibrated straight line, divided in three parts; 0= No pain; 5= Moderate pain; 10= Severe pain.

The participant if enabled to hold a pen/pencil/chalk is asked to mark a point on this scale which is closest to his feeling of pain. Only three points 0,5,10 are visible to the patient. As this is an approximate numerical expression of pain experienced by the participant, its accuracy is completely dependent on his/her understanding of the question asked along with the psychological state of mind at that particular moment.

Graphical presentation of data:

Total participants Screened: 124

Total participants who participated in the study: 96

Male participants: 56

Female participants: 40

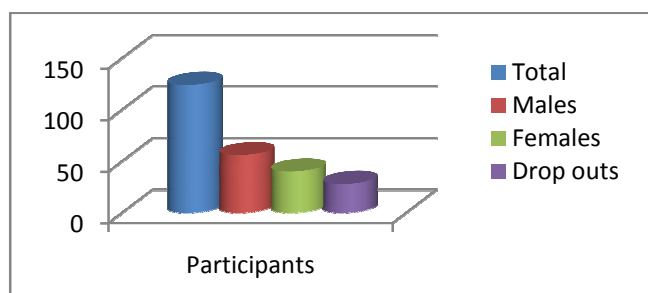
Participants who did not participate: Unwilling: 11

Unable to communicate: 10

Psychologically disturbed: 3

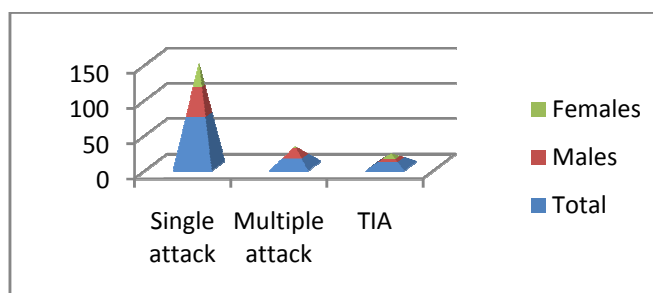
Medically unstable: 4

Total Participants	124
Participants in the study	96
No. of Male participants in the study	56
No. of female participants in the study	40
Non participants(Drop outs)	28



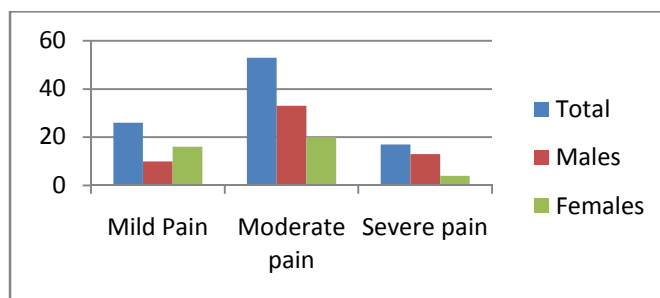
Graph 1. Showing number of Participants

No. of Attacks	Total	Males	Females
Single	73	41	32
Multiple	14	12	2
TIA	9	3	6



Graph 2: Number of stroke attacks

VAS Score	Total	Male	Female
Mild pain 0-4	26	10	16
Moderate pain 4-7	53	33	20
Severe pain >7	17	13	4



Graph 3: Visual Analogue Scale scores

Based on the above data collection and graphical presentation it is clear that, shoulder pain is a common occurrence in participants after an attack of stroke. The graphs depict its occurrence, male preponderance and no changes in Visual analogue scale scores in multiple attacks.

Results

The study reveals positive results for prevalence of shoulder pain post stroke attack in the participants. The males show a greater inclination towards it than woman. The intensity of pain does not vary much in between participants with single and multiple attacks as noted by the interview and Visual analogue scale markings. Majority of the participants had a single attack of stroke with moderate intensity of pain. The above results are based on the information collected from Pravara Rural Hospital, Loni, Ahmednagar.

Discussion

Based on the results and their graphical presentation it can be deduced that shoulder pain is prevalent after an attack of stroke. The intensity is more or less the same in patients with single or multiple attacks. The normal range of shoulder pain on Visual Analogue scale is found between 4 - 7 (i.e. 55, 20% of total participants). Such a high incidence puts light on lack of awareness and delayed management of shoulder pain by the participants and those incharge. The participants with TIA (Transient ischaemic attack) showed almost nil shoulder pain.

Thus above data provides information with evidence of prevalence of shoulder pain in population under study with little influence of sex and frequency of attacks on the intensity of pain. However, Visual Analogue Scale is completely a participant dependent rating scale for pain and can be fluctuating. The study however does not end here, it needs to be continued to gather further information about most common cause of pain to enable us to prevent and fight this disabling, depressive complication.

Conclusion

Based on the data collected and the study conducted on 96 participants out of 124 screened for the same purpose admitted in Pravara Rural Hospital, under the guidance, supervision and support of Physiotherapy staff, Medical staff, Nursing Dept. and Hospital administration it can be concluded that post stroke shoulder pain is a common disabling and a depressive complication which is prevalent in almost 50% of people who have an attack of stroke. It is also one of the key factors affecting the rehabilitation along with increasing the hospital stay. It is also known to reduce independent functional capacity of the affected upper extremity. Thus, it's necessary to concentrate on this fairly common disability and try to prevent it rather than curing it.

Limitation of the study

The study though carried out in a controlled environment in a hospital has its own limitations. The limitations were caused due to human errors of accuracy. The patients in the

study are suffering from a disease of sudden onset with disabling features leading to depression and disturbance in their psyche, behavior and physicality.

Thus, answers given by them are bound to belittle inaccurate.

The other source of limitation is the Visual Analogue Scale scoring as it is completely dependent on the person marking it. It is a 10 cm long line on which the participant has to mark with just 3 points visible; this can lead to misdirection. Efforts to overcome these limitations are done to the best of human efforts.

References

- [1] Poduri K.R. (1993), Shoulder pain in stroke and its effect on rehabilitation. *J Stroke Cerebrovascular Dis.*; 3:261-6.
- [2] Teasell R.W. (1998), The painful hemiplegic shoulder. *Physical Medicine and Rehabilitation: State of the Art reviews.*, 12(3):489-500.
- [3] Hanger H.C. et al (2000), A randomized controlled trial of strapping to prevent post stroke shoulder pain. *Clin Rehabil. Aug*; 14(4):370-80.
- [4] Chae J et al. A Neuromuscular simulation for upper extremity motor and functional recovery in acute hemiplegia. *Stroke*. May 1998;29(5):975-9
- [5] Chae J et al. (2005), Intramuscular electrical stimulation for hemiplegic shoulder pain: A 12 month follow up of a multiple- center, randomized clinical trial. *Am J Phys Med Rehabil*. Nov.;84(11):832-42.
- [6] Cailliet R. (1991), *The shoulder in the hemiplegic patient in shoulder pain*. 3rd edition F.A. Davis;193-226.
- [7] Dromerick A.W. et al (2008), Hemiplegic shoulder pain syndrome: frequency and characteristics during inpatient stroke rehabilitation. *Arch Phys Med Rehabil*. Aug; 89(8):1589-93.
- [8] Fagri P.D. et al. (1994), The effects of functional electrical stimulation on shoulder subluxation, arm function recovery and shoulder pain in hemiplegic stroke patients. *Arch Phys Med Rehabil*, Jan;75(1):73-9
- [9] Culham E.G. et al. (1995), Shoulder complex position and glenohumeral subluxation in hemiplegia. *Arch Phys Med Rehabil*. Sep;76(9): 857-64.
- [10] Prevost R. et al. (1987), Rotation of the scapula and shoulder subluxation in hemiplegia. *Arch Phys Med Rehabil*, Nov;68(11):786-90.
- [11] Prevost R. et al. (1987), Shoulder subluxation in hemiplegia; a radiologic correctional study. *Arch Phys Med Rehabil*. Nov;68(11):782-5
- [12] Van Ouwenaar et al. (1986), A painful shoulder in hemiplegia. *Arch Med Phys Rehabil*. Jan; 67(1):23-6.
- [13] Forster A. (1994), Painful hemiplegic shoulder: Physiotherapy treatment. *Rev Clin Gerontol.*; 4:343-8.
- [14] Najenson T et al. (1971), Rotator cuff injury in shoulder joints of hemiplegic patients. *Scand J Rehabil Med*, 3(3):131-7.
- [15] Aras M.D. et al. (2004), A shoulder pain in hemiplegic results from a national rehabilitation hospital in Turkey, *Am J Phys Med Rehabil*, Sep.;83(9):713-9.
- [16] Boyd E.A. et al. (1992), Clinical measures of shoulder subluxation: their reliability. *Can J Public Health*. Jul- Aug.; 83 Suppl 2:S24-8
- [17] Bohannon R.W. et al. (1990), Shoulder subluxation and pain in stroke patients. *Am J Occup Ther*. Jun; 44(6):507-9
- [18] Yu D.T. et al (2001), Comparing stimulation induced pain during percutaneous and transcutaneous neuromuscular electrical stimulation for treating shoulder subluxation in hemiplegia, *Arch Phys Med Rehabil*. Jun;82(6):756-60
- [19] Yu D.T. et al. (2001), Percutaneous intramuscular neuromuscular electric stimulation for the treatment of shoulder subluxation and pain in patients with chronic hemiplegia: A pilot study. *Arch Phys Med Rehabil*. Jan;82(1):20-5.