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Original Research Article

Physiotherapy Outcomes on Sexual Dysfunction among Ischemic and Hemorrhagic Stroke Survivors

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Abstract

Background & Purpose: *Stroke is a major cause of disability and premature death in various developing countries, including India. Although various physical and psychological dysfunctions are associated with stroke, sexual dysfunction that is not often addressed either by the patient or by the health care provider can greatly influence the quality of living among stroke survivors.*
Aim: *The study is aimed at comparing the physiotherapy outcomes of sexual rehabilitation on sexual dysfunction among ischemic and hemorrhagic post-stroke survivors.*
Materials & Methods: *A total of 109 stroke patients, Ischemic (n=76) and Hemorrhagic (n=29) were selected for this research. A written consent was taken after inclusion criteria is satisfied. Both groups were given structured physiotherapy daily for a one-hour session along with psychological support by verbal communication. The sexual functioning is calculated by CSFQ-14 before intervention and after six months of follow-up.*
Results: *After sexual rehabilitation, both groups showed statistically significant improvement in sexual functioning (CSFQ-14 scores), p<0.001. But there was no significant difference between ischemic and hemorrhagic post-stroke survivors in sexual functioning statistically.*
Conclusion*: Both ischemic and hemorrhagic post-stroke survivors showed similar results on sexual functioning after physiotherapy. Hence, both ischemic and hemorrhagic post-stroke survivors can be included in a sexual rehabilitation program.*

Keywords: *Physiotherapy, Sexual rehabilitation, Stroke, Pelvic floor training, Sexual dysfunction*

1. Introduction

An important cause that can lead to disability and deathin various developing countries, including India is Stroke. Along with various physical and psychological dysfunctions caused by stroke, sexual dysfunction often overlooked by the patient as well as health care provider. Sexual dysfunction could influence the quality of living among the stroke survivors [1-3]. Hypo sexuality leads to a reduction in libido, reduced frequency or cessation of intercourse, erectile dysfunction, reduced vaginal lubrication. It is often observed but less complained about by stroke survivors [4,5]. In a conservative society like India, even though sexual activity is a basic need for a normal life, society tends to deny the sexuality of people who are physically disabled [6,7]. The most common sexual concerns of the stroke survivors being physical disability to engage in sex could affect the psychological state of the individual, which can have serious ill effects on the overall rehabilitation outcomes [8]. Sexual dysfunction is often less discussed as it has some barriers such as insufficient time, knowledge, personal attitude about sexuality, and readiness by the patient [9]. There are not many studies or reviews focusing on sexual rehabilitation in stroke patients. Several studies suggested that Ischemic stroke patients rate of survival is better than hemorrhagic stroke patients [10]. Earlier types of studies focused on physical rehabilitation and

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compared ischemic and hemorrhagic strokes. This study is unique of its kind to compare the sexual rehabilitation outcomes among the ischemic and hemorrhagic stroke patients.

Aim of the research

To compare the physiotherapy outcomes on sexual rehabilitation among the Ischemic and hemorrhagic stroke survivors.

Objectives

1. To find out the role of physiotherapy along with psychological support in improving sexual health dimensions among the stroke survivors.
2. To compare the sexual rehabilitation outcomes among the Ischemic and hemorrhagic stroke survivors.

2. Materials and methods:

This research was conducted at a superspeciality hospital at Guntur, India. The total duration of the study was one year. It is a Subject –blinded randomized clinical trial. The study has ethical approval from the local Institutional Ethical committee. Reg. No: ECR/439/Inst/AP/2013/RR-16.

A total of 486 subjects of confirmed stroke were screened for the study, of which 109 patients satisfied inclusion criteria. The inclusion and exclusion criteria are described in Table 1. Out of 109 subjects, Ischemic stroke cases (group A) were 80 and Hemorrhagic cases (group B) were 29. All the subjects gave written consent to participate in this study.

2.1 Intervention

An hour sexual rehabilitation was given to Group A and B daily which included psychological support in the form of verbal communication. The sexual rehabilitation included bed mobility training (5 min), sexual positioning (10min), transferring activities (10 min), Pilates exercises (10min), Functional electrical stimulation for erectile dysfunction (10 min) or Vaginal electrode stimulation, (10 min), Kinesiotherapy (5 min) (Fig. 1) Patients were given Physiotherapy under the supervision of a Physiotherapist during the hospital stay. All the patients followed the sexual exercises at home with pictorial and written instructions about the sexual positioning, and various exercises given by therapist. Routine physiotherapy was also given for 1 hour per day for 2 weeks. PLISSIT model counseling were also given during hospital stay [11].

The routine physiotherapy included bed mobility, strengthening, coordination, transfer activities. Patients were given physiotherapy for 2 weeks during in the hospital stay period and advised to continue the exercises at home.

Table 1: Inclusion and Exclusion criteria

Inclusion criteria	Exclusion criteria
1. Confirmed diagnosis of stroke.	1. cognitive issues.
2. Age 20 – 55 years.	2. Dementia.
3. Mentally cognitive.	3. Aphasia either global or wernicke's
4. Ability to communicate.	4. .Sexually inactive before the onset of stroke
5. Cognitive and cooperative.	5. .
6. Both males and females.	
7. Sexually active before onset of stroke.	

2.2 Outcome measures

Both Group A & B were assessed for outcomes on the first day of recruitment before starting the intervention (pre-test) and after follow up at 6 months. The sexual functioning of the patients was assessed by the CSFQ-M for males and CSFQ-F for females. It is a reliable and valid 14-item scale which provides scores of on the phases of sexual response cycle-desire, arousal, and orgasm.

2.3 Statistical analysis

In this study to analyze the effect of Physiotherapy on sexual rehabilitation, demographic data such as age, intervention time since onset of stroke, gender, side of hemiplegia, and functional independence measures (FEM) were compared by Mann Whitney u test.

The CSFQ-14 scores of the pretest and post-test were expressed in mean, standard deviation, and standard error. The Pre-test and Post-test scores were analyzed for the statistical difference within the group by the Paired 't' test. The statistical significance between the groups was calculated by the unpaired 't' test at a 5 % level of significance.

Figure 1: Sexual rehabilitation exercises

3. Results

At the end of study, 4 subjects from Group A dropped out from the study due to various reasons. A total of 76 subjects in group A and 29 subjects in Group B completed the study and were analyzed for statistical significance. The baseline demographic features showed no significant difference between the groups except Group A has more males. All the subjects were heterosexuals. (Table 2). The CSFQ-14 in both groups have shown improvement and are statistically significant. The pretest CSFQ-14 mean of Group A is 32.90 SD +/- 5.00 and posttest mean is 58.55 SD +/- 7.66. The pretest mean of CSFQ-14 of Group B is 33.79 SD +/- 5.54 and posttest mean is 56.93 +/- 8.06. The mean of differences between pretest and posttest CSFQ-14 in Group A is 25.64 SD +/-9.19 and that of group B is 23.14 SD +/- 9.54. The *p*-value is .109449. The result is not significant at $p < .05$. (Table 3)

4. Discussion

In this study, to compare the physiotherapy outcomes of sexual rehabilitation among ischemic and hemorrhagic stroke patients, no statistically significant difference observed. It indicates that both ischemic and hemorrhagic stroke patients show almost similar physiotherapy outcomes of sexual rehabilitation.

Sexual health is a state of physical, emotional, mental, and social well-being concerning sexuality. [12].

Table 2: Baseline Demographic Characteristics of Group A and Group B.

Characteristic	Group A	Group B
Age (mean)		
Males (%)	55.26	44.44
Females (%)	44.73	55.55
Left hemiplegic (%)	57.89	75.86
Right hemiplegic (%)	42.10	24.13
Time post stroke before recruitment*(Mean of days)	2.75	3.655172
FIM SCORE (mean)	54.89474	54.44828

Table 3: Pre-test and Post-test comparison of CSFQ-14 scores in Group A & B

Variable	Group A				S.E.	Difference	
	Pre test		Post test				
	Mean	SD+/-	Mean	Mean		Mean	SD+/-
CSFQ-14	32.90	5.0	58.55	7.66	1.054	25.64	9.19

Group B				S.E.	Difference		P Value
Pre test		Post test					
Mean	SD+/-	Mean	Mean		Mean	SD+/-	
33.79	5.54	56.93	8.06	1.771	23.14	9.54	P>.05

The patient's tendency to minimize post-stroke disabilities, with an attitude of denial or compensatory overestimation, seemed to be suggested by the fact that the percentage of couples in which the patient exhibited an overestimation of sexual activity as compared to his or her partner was much higher than for couples in which the opposite was found.

A disturbed autonomic neural structure and their connections that are responsible to erection can lead to sexual dysfunction in stroke patients. It also leads to motor weakness, spasticity, and physical handicaps of sexual activity [13,14].

Most of the rehabilitation of stroke includes making the patient come to normal life as possible. But many rehabilitation professionals address sexual function rarely because of many barriers.

Sexual life is very important in sexually active individuals, and it may cause depression, stress, and anxiety if the patient's sexual desire/life is not satisfied.

Physiotherapy in sexual rehabilitation includes training for the pelvic floor muscles, Pilates exercises, bed-mobility exercises, endurance exercises, functional electrical stimulation of Bulbocavernosus muscle.

The pelvic floor muscles play an important in sustaining blood flow to the penis to maintain erections. These muscles keep constant pressure on penile veins during sexual activity and prevent blood from leaving the area making the erection sustained and possible.

When post-stroke women practice Kegel exercises an improvement in the strength of pelvic floor muscles was evident which helps in improving the sexual

function in women. The Kegel exercises help to relax vaginal muscles, which makes the vagina to be more open, thus reducing the pain during sexual intercourse, as pain is complained by many post-stroke women and have stopped participating in sexual activity with fear of pain [15]. They also aid in promoting sexual arousal and vaginal lubrication [16].

The functional electrical stimulation (FES) used in erectile dysfunction in stroke patients is a technique where electrical impulses are given to stimulate the Bulbocavernosus muscle which plays an important role in erection. It utilizes low frequency, direct currents which are applied to the surface of the skin by adhesive electrodes and stimulated for about 15 min.

FES stimulates the muscles and nerves effectively. When electrical impulses are given to the Bulbocavernosus muscle, there will be a high regenerative capacity of smooth muscle cells. The electrical stimulation stimulates the nerve pulses to which the cavernous body cells react, thus increases their responsiveness and reaction speed, leading to the erection [17].

Sexual dysfunction is directly related to the pelvic floor muscle pathology and its weakness. A thorough and effective strengthening of pelvic floor muscles shall address effectively the issues of sexual dysfunction due to pelvic floor muscle weakness. According to the author, sexual dysfunction due to musculoskeletal problems can be found in both men and women, but women are more affected. Physiotherapy can effectively address these problems and overcome the sexual problems in addition to other therapies which are recommended by experts.

A less addressed stoke disability is Sexual dysfunction among patients and healthcare professionals. A gap in the communication on sexual health is found to be the cause of sexual dysfunction and sexual health issues found in stroke patients.

Many patients require counseling on sexual health after stroke. They have many fears and anxiety about sexual functioning post-stroke. They require counseling on sexual health and functioning after stroke. Sexual health counseling by the PLISSIT model of sex therapy has shown tremendous improvement in health in subjects with sexual dysfunction of various causes including stroke.

The counseling on various possible sexual positions for intercourse, the concept of oral sex, and mutual masturbation were given to the patients as a part of sexual counseling. There should be an interaction between the patients, their sexual partners, and health care professional which includes information on sexual concerns and safe return to sexual activity [18,19].

In a study by Song H. et.al., effects of a sexual rehabilitation intervention program on stroke patients and their spouses, they found evidence of the use of sexual education, counseling, rehabilitation on the sexual health of post-stroke patients [19].

Rosenbaum et.al, (2013), in their study exemplified that sexual function is an important component to quality of life and activities of daily living. The physicians and rehabilitation specialists should receive training in addressing sexuality in the treatment of post-stroke patients [20].

6. Conclusion

The results of this study suggested that the stroke subjects who received sexual rehabilitation programs along with counseling and routine physiotherapy have a greater improvement in sexual health, improvement of coping depression, anxiety, stress, and gaining overall functional independence. There is no difference in the physiotherapy outcomes of sexual rehabilitation on sexual dysfunction among Ischemic and Hemorrhagic post stroke survivors. Hence, sexual rehabilitation should be integrated with stroke rehabilitation and need to be focused on the complete well-being of the post-stroke survivors.

Limitations of the study

1. All the subjects were heterosexuals; we couldn't find the sexual rehabilitation outcomes among the homosexuals and bisexuals.
2. The subjects recruited for this study are from a single region, hence the regional differences in counseling and rehabilitation couldn't be assessed.

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Competing interest:

The authors declare that there are no conflicts of interest.

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