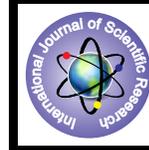


Comparison Between Sensory Responses of Two Active Assisted Slump test Techniques in Asymptomatic Subjects



Medical Science

KEYWORDS : SLUMP test; sensory response; intensity

Dr. Shefali Kapoor

Asst. Professor, Prem Physiotherapy and Rehabilitation College, Panipat, Haryana.

Dr. Vinay Jagga

Principal/Professor, Prem Physiotherapy and Rehabilitation College, Panipat, Haryana.

Dr. Megha Gakhar

Asst. Professor, College of Physiotherapy, Pt. B.D. Sharma Uni. of Health Sciences, Rohtak.

ABSTRACT

Introduction: Slump test is used as fast, low cost diagnostic tool in the evaluation of leg & back pain disorder. It is a physical examination procedure used for evaluating patient with spinal and lower extremity complaints

The purpose of this study: Was to compare the normative sensory response with two different active slump test technique in asymptomatic subjects

Method: 120 asymptomatic subjects volunteered for the study. Subject meeting any of the following exclusion criteria were excluded from the study: (1) Any history of leg or back problem from last 6 months to 1 year (2) Any pathophysiological limitation to performing slump test (3) Any history of trauma of upper limb and spine from past 6 months to 1 year (4) Any history of general medical condition. Main outcome measures: VAS for intensity of response and body chart for location of response

Results: There was significant difference between two active assisted techniques i.e. long sitting & high sitting of SLUMP test.

Conclusion: we conclude that SLUMP long sitting technique is more effective in producing sensory responses in asymptomatic subjects and this is an effective mass screening test to predict the progressing muscle tightness and neural tension.

INTRODUCTION

Slump test is used as fast, low cost diagnostic tool in the evaluation of leg & back pain disorder. It is a physical examination procedure used for evaluating patient with spinal and lower extremity complaints. The test seeks to rule out or identify tension in the neuromeningeal tract. The performance of test places traction on the neuromeningeal tract from head to foot & slump test consist of a series of passive movements designed to assess the mechanics & physiology of neural tissue. Throughout the procedure pain or any other sensation, available range of movement and muscle response are monitored ^(1,2). Anatomical studies confirm that components of the slump test do place extra stress on neural structures, for example full flexion of cervical, thoracic and lumbar region of the spine lengthen the vertebral canal and are associated with the stretching of the spinal dura mater and lumbar sacral nerve roots ⁽³⁾. Special variation of slump test exists. The principle difference between variations is only the order of the test. One variation uses the dorsiflexion of foot prior to the knee extension, another uses cervical flexion after knee extension and foot dorsiflexion. A test is begins with the patient in a seated position on the examiner table with the lower extremity is extended along the table. If symptoms of slump test can be changed by adding or subtracting a distal maneuver of slump test, the test response is interpreted to be related to the pathological changes affecting the mechanics of neural system. The pathological changes or sources of symptoms may be neural system itself or adjacent interfacing tissue. ^(2,4)

There are many active assisted slump test technique. So in this study we are comparing 2 techniques as there is lack of evidence regarding which active assisted slump test technique is better for assessing the sensory response in asymptomatic subjects. In some studies it has been observed that slump test is also positive in asymptomatic subjects.

MATERIAL & METHOD

A convenient sample was taken from Prem Physiothera-

py and Rehabilitation College Panipat and Central Parks at model town and Sadar bazar karnal. 120 subjects were taken which were equally dividing into 3 groups with 20 males and 20 females in each group. The subjects were explained about the procedure and then group A performed slump long sitting, group B performed slump high sitting and group C performing both long sitting & high sitting after fulfillment of inclusion criteria Volunteers of 18-25 yrs. of age, both male & female, able to understand simple English words & never visited to a doctor due to leg or back pain from last 6 month to 1 year are included in this study.

PROCEDURE

All subjects will be equally divided into 3 groups A, B & C in which subject in Group A perform slump long sitting & Group B perform slump high sitting with ankle dorsiflexion & Group C perform both high sitting & long sitting. Standardized verbal instructions will be given by the examiner to explain the test to each subject. Any Sensation or response will be recorded in the starting position and at the four stages of slump test [slump sitting/thoraco-lumbar and cervical flexion (SS), knee extension (KE), ankle dorsi flexion (AD) and cervical extension (CE)] & again when subject returned to comfortable sitting position. At each stage of test, nature, location and intensity of any sensory response will be recorded.

To determine location of response subject will be shown a body diagram with eight regions clearly outlined. At each stage of test, subject will be asked to identify the location of each response according to body diagram. Subject to be published under: Medical Sciences

To determine intensity, subject will be asked to rate the intensity of response on a verbal descriptor scale of 0 to 10.

RESULT & DISCUSSION

The results demonstrate that SLUMP long sitting technique is more effective in producing sensory responses in asymptomatic subjects. All the values of intensities in group A, group

B, group C are expressed in terms of mean ± S.D for males & females respectively. By applying “unpaired t-test” significant different between the intensities of group A and group B, group A and group C, group B and C are noted. A significant difference was observed between group A and group B, group A and group C, group B and C for males & females at 5% level of significance. In this study group A showed 45% of sensory response during the slump sitting (SS) stage while 52.5% subject experience during cervical extension (CE) and ankle dorsiflexion (AD) stage of slump test. While in group B, 15% of subjects experience sensory response in SS where as 85% experience sensory response in CE and 100% subjects experience sensory response in DF. In group C out of 40 patients, 27.5% of subjects performing long sitting have sensory response in SS where as 65% of subject have sensory response in CE while 2.5% of subjects have no response in DF . Where as in high sitting 17.5% of subjects have response in SS, 70% have response in KL^s and 40% have response in DF where as 12.5% of patients experience no sensory response in KE.

Table 1: Showing the mean value of intensity between group A and group B for males and females

Gender	Group A	Group B	P-Value	Significance
Male	3.3875 ± 2.9618	2.575 ± 2.8586	0.7942	P > .05
Female	2.81 ± 2.88	2.45 ± 2.662	.4098	P > .05

Table 2 : Showing the mean value of intensity between group C for males and females

Gender	Long Sitting	High Sitting	P-Value	Significance
Male	2.825 ± 2.8185	2.825 ± 3.0222	\$.	P > .05
Female	2.43 ± 2.87	2.29 ± 2.83	.7605	P > .05

The result in my studies reveals that the mean intensity of the response of slump test is higher in males than females. This variation in the average intensities may be due to the physiological variation in males & females. After performing slump test it has been found that the mostly recorded sensory response is stretch, tightness & pain. Stretch as a response is due to the course of sciatic nerve mainly and pain is due to overstretching of Dura at axilla of intervertebral foramen. It implies that symptom arising from the structure within the canal is due to the Dura mater exclusively (5).

In this study greater number of responses are located at the calf region which in may be due to the stretching of common peroneal nerve which is a branch of sciatic nerve (6).

During this study is has been reported that range of knee extension is increased after cervical extension. This may be due to the fact that cervical spine flexion produces tension in the spinal cord and dura which is transmitted caudally, pulling the nerve root of caudal equina cranially. This stretching and cephalad displacement of the lumbosacral nerve roots and sacral plexus reduces the available caudal mobility of sciatic nerve. As a result subsequent lower extremity motion which exert a caudal pull on lumbosacral trunk and nerve root may be restricted (7,8).

Following the slump test it is noted that there is subsequently increase in intensity after the dorsiflexion stage of

slump test. This may be due to the fact that ankle dorsiflexion is a sensitizing maneuver and is known to increase tension primarily along the tibial tract (9)

CONCLUSION

The study was on comparison between two active assisted slump test techniques to see sensory responses in asymptomatic subjects and the result of our study conclude that slump long sitting technique is more effective in producing sensory response in asymptomatic subjects and this test is an effective mass screening test to predict the progressing muscle tightness and neural tension.

REFERENCES

1. Jeremy Walsh, Kathleen Bennett and Niall Johnstons(2007).‘Slump test:Sensory Responses in Asymptomatic subject’, J Man Manip Ther, 15 (4), 231-238.
2. K. Jeffrey Miller.(1998)‘The slump test: clinical application and interpretation’, Chiropractic Orthoparidist, November.
3. Steven Z. George.(2002) ‘Characteristic of patient with lower extremity symptoms treated with slump stretching: A case series’, J orthop sports phys Ther, 32 , 391-398.
4. Sterling M, Treleaven J, Jull G.(2003) ‘Response to a clinical test of mechanical provocation of nerve tissue in whiplash associate disorder’, Man Ther. Feb, 8 (1) 52-53
5. Butler DA.(1991): Mobilization of the nervous system Melbourne, Australian Churchill Livingstone.
6. Chaurusia’s BD.(2004): Human Anatomy
7. Kathleen Philip, Paul Lew, Thomas A Matyas. ‘The inter therapist reliability of slump test’, The Australian journal of physiotherapy, 35 (2)
8. Evan K. Johson, Cynthia M Chiarello.(1997) ‘The Slump test: the effect of head & lower extremity position on knee extension’ JOSPT, Dec, 26(6)
9. Pahor S, Toppenberg R.(1996) ‘An investigation of neural tissue involvement in ankle invrsion sprain’, Man Ther,Sep,1(4,192-197).