

Role of strength-duration curve in radiculopathy

Isha Akulwar-Tajane*, Amesh More and Sikander Chimbaiwala
K J Somaiya College of Physiotherapy, India

Strength Duration Curve (SDC) is a plot of the threshold current versus pulse duration required to stimulate excitable tissue such as a nerve or muscle. This geometrical relationship makes it a quantitative and qualitative tool to assess electrophysiologic excitability. It is a routinely performed procedure for clinical identification of many neuromuscular conditions.

Radiculopathy is a clinical condition defined as pain and/or neurologic deficit in a specific nerve root distribution, including motor loss, sensory changes and sometimes depression of reflexes. It is caused by mechanical compression of a nerve root usually at the exit foramen or lateral recess. The intervertebral disc is the most important factor in Low Back Pain (LBP) and testing these subjects for nerve root lesions might be rewarding. In LBP patients, it is important to establish whether or not radiculopathy is present. This can be difficult when clinical, radiological & electromyographic abnormalities are not consistent with focal nerve root involvement. For many years, traditional electro diagnosis has been the main means of testing for radiculopathies caused by lumbar disc herniation. Determination of chronaxie values has been suggested as a method of studying intervertebral disc lesions. The assumption or basis is that the electrical excitability would be altered in muscles supplied by a nerve with a compressed root as a result of a disc herniation. This scoping review focuses on the role of SDC in radiculopathy and discusses its importance; procedural approach; parameters of significance; limitations; and implications for clinical practice and research. Literature search for the present study identified four clinical experimental studies using chronaxie alone and/or with SDC in patients with suspected disc pathology published between the years 1952 to 2015. Results of the study suggest that SDC and chronaximetry can serve as an electrical equivalent to myotomes testing & can help in localizing the level of disc lesion after causes of nerve affection have been ruled out by clinical evaluation. Chronaxie tests are practical and objective tests that can be very helpful to the clinician in correlation with other clinical and laboratory data. SDC plotting along with chronaximetry improves the accuracy and reliability. Together they offer a reliable, reproducible method for the detection of nerve root lesions resulting from disc pathology and assist in localization of the disorder to within two disc spaces and also can help in determining whether the disc bulge is unilateral or bilateral. This approach can complement assessment in the diagnostic phase prior to rehabilitation & in the monitoring of treatment effectiveness. In terms of clinical applications, the results of this study reinforce the need for quantitative evaluation & to reinstate electro-diagnostic procedures in clinical practice.

37th European Neurology Congress

May 02-03, 2023

Webinar

Biography

Isha Akulwar-Tajane (PT) holds a master's degree in Neurosciences Physiotherapy and is currently pursuing PhD. She is working as an Associate Professor at an academic institute and a tertiary care hospital in India; and has more than 13 years of clinical and teaching experience. She is in-charge of the adult neurological unit and has a vast experience in rehabilitation of a wide range of pediatric as well as adult neurological conditions. She is passionate about research; her areas of interest being clinical research, literature based reviews, advanced technology and medical education. She strives to implement recent advances and evidence based practice to deliver quality patient care and also in teaching-learning methods for students. Her expertise is advanced balance training using computerized equipment such as the balance manager system. She has served as an international faculty for balance and mobility academy, USA. She has presented posters and papers at various national and international research conferences and has won many awards. She has more than 30 publications in various international journals to her credit and has been serving as an editorial board member and/or reviewer for more than 50 international journals of repute. Her excellent contribution to research has been well appreciated by the scientific community all across the globe. She continues to inspire students and fellow colleagues with her significant achievements in the field of physiotherapy.

Received: April 02, 2023; **Accepted:** April 05, 2023; **Published:** May 02, 2023
