

2023 RSS
Scientific Meeting

Innovation & Collaboration
to Advance Patient Outcomes
March 23–25 | Orlando, FL



A Novel Radiosurgical Treatment: Frameless Radiosurgery for Spasticity

Pantaleo Romanelli, MD - CDI Centro Diagnostico Italiano; **Evan M. Thomas, MD, PhD** - James Cancer Center, Ohio State University Wexner Medical Center

Objectives: Close to 100 million people worldwide suffer the sequelae of severe trauma to the brain or spinal cord. Spasticity and related pain are a common and debilitating long-term complication in survivors. Conventional surgical treatments such as baclofen pumps and selective dorsal rhizotomy (SDR) are effective but offered to a limited number of patients. A novel non-invasive treatment for spasticity, stereotactic radiosurgery (SRS) of the sensory component of selected nerve roots, is reported here. This treatment is the radiosurgical equivalent of SDR, a procedure of well-known efficacy.

Methods: Seven patients with refractory spasticity and related pain due to traumatic brain and/or spinal cord injury, brain and/or spinal cord surgery, and stroke underwent stereotactic irradiation of selected cervical or lumbar roots. The treatment was delivered to the post-ganglionic sensory segment of cervical roots or to the dorsolateral sensory region of lumbar roots. Selection of the irradiated roots was based on somatotopic distribution of spasticity and related pain as well as EMG findings. Modified Ashworth Scale (MAS) and Visual Analogue Score (VAS) have been used to assess spasticity and related pain levels before and after the procedure.

Results: The treatment was well tolerated. Marked symptomatic relief of spasticity and pain was found in all the patients treated. After 2 years, the median reduction of MAS score was 50%. The mean reduction of MAS and VAS was, respectively, 43.7% and 64.3%.

Conclusion(s): SRS of spinal nerve root appears to be a safe and effective noninvasive treatment for patients with spasticity and pain caused by brain or spinal cord injury. This technique provides a useful option for the treatment of a wide variety of patients suffering from the long-term sequelae of neurological injury and can broadly expand the ability to treat patients currently orphan of treatment. A randomized, sham-controlled prospective study is underway.



2023 RSS Scientific Meeting | March 23 - 25, 2023 | Orlando, FL

www.therss.org | www.rssevents.org