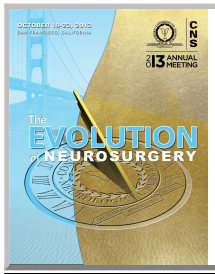

Rationale, Design and Early Trial Performance of AOSpine North America Multi-Center Double Blind Randomized Controlled Trial of Safety an0d Efficacy of Rluzole in CSM (CSM – Protect Trial)

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Introduction

While surgical decompression is an effective treatment for CSM, many patients have substantial residual neurological and functional impairment. Compelling evidence from preclinical models of nontraumatic and traumatic spinal cord injury (SCI) suggest a benefit of adding a neuroprotective drug which targets sodium/glutamate excitotoxicity to the treatment of patients with SCI.

Methods

This is a prospective multi-center double-blind randomized controlled trial in which a total of 300 patients undergoing surgical decompression for CSM will be randomized 1:1 to riluzole 2x50mg daily for 14 days before the surgery and 28 days after the surgery or to the placebo. The primary outcome measure is change in mJOA between baseline and 6 months; secondary outcomes include ASIA, SF36v2, NDI, EQ5D, Pain VAS and complications. The sample size was estimated based on data from a recently completed prospective cohort study. A sample size of 270 completed subjects will have 80% power to detect absolute difference of .9 in mJOA score between the investigational and the control group. The statistical analysis is organized as a sequential adaptive trial with one interim analysis at 65% of the accrued sample for early futility and efficacy. The adaptive statistical design allows for sample size adjustment at the time of interim analysis.

Results

To date, 70 subjects have been enrolled. The average age of the enrolled subjects is 56.6 years (SD 15.1). 61.6% are males. The baseline mJOA is 11.6 (SD 1.9), baseline NDI is 42.1 (SD 21.7) and the baseline SF36v2 Physical Component Score (PCS) is 36.3 (SD 9.3). The baseline EQ-5D is 0.65 (SD 0.20), and ASIA Total Motor Score is 95.8 (SD 5.2).

Conclusions

In spite of the benefits of the surgical intervention, patients with CSM experience significant residual impairment and neurological compromise. Adding neuroprotective treatment with riluzole may improve outcomes of surgery.

Learning Objectives

The purpose of this study is to evaluate efficacy and safety of the sodium-glutamate antagonist riluzole in improving neurological outcomes in patients with cervical spondylotic myelopathy undergoing surgical treatment.

References

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Patient Demographics

Demographics		N (%)
Age (N = 55)		56.6±15.1
Gender	Female	28 (38.4%)
	Male	45 (61.6%)
Race	White	63 (86.3%)
	African-American	5 (6.8%)
	Asian	1 (1.4%)
	Unknown	3 (4.1%)
	Other	1 (1.4%)
Surgery	Anterior	21 (38.2%)
	Posterior	31 (56.4%)
	Ant + Pos	1 (1.8%)
	Data Missing	2 (3.6%)
Duration of Symptoms (N = 55)		46.4±66.4

Patient Smoking Status and Number of Levels Operated

Summary of Smoking Status		N (%)
Subject has smoked at least 100 cigarettes in their entire life	Yes	31 (52.2%)
	No	27 (45.8%)
	Don't know / Not sure	1 (1.7%)
		Mean (Standard Deviation)
Number of Surgery Levels		4.2 (1.4)

Baseline Patient Outcomes

Outcome Measure		Mean (Standard Deviation)
mJOA (N = 46)		11.6 (1.9)
ASIA	Motor Total (N = 54)	95.8 (5.2)
	Sensory Light Touch (N = 44)	105.2 (9.4)
	Sensory Pin Prick (N = 44)	105.6 (9.0)
SF36v2 PCS (N = 55)		36.3 (9.3)
Pain VAS	Pain in Arm and Shoulder (N = 55)	4.7 (3.0)
	Pain in Neck (N = 55)	5.0 (2.9)
NDI (N = 54)		42.1 (21.7)
EQ-5D (N = 55)		0.65 (0.20)

Baseline Patient SF-36 Scores

SF36v2	Mean (Standard Deviation) N=55
Emotional Well –Being	41.3 (12.0)
Role Limitation – Emotional	38.4 (14.7)
Social Functioning	37.4 (13.4)
Energy/Fatigue	41.1 (11.3)