“Medication Soup: Medication Implementation Attempts to Reduce Severe Posturing Secondary to Dysautonomia in the Setting of Anoxic Brain Injury “
A Case Study
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OBJECTIVES
1. To describe/present differing perceptions of spasticity, posturing, and dysautonomia in relation to acute brain injury.
2. To highlight the sequence of medications attempted for treatment of dysautonomia; in an attempt to provide assistance with decisions made in other cases of dysautonomic management.
3. To describe non pharmacological measures utilized for treatment of dysautonomia and highlight their beneficilialty.

PATIENT INFORMATION
15 month old female with acute hypoxic ischemic injury secondary to a near drowning.

Methods (Hospital Course)
• Prior to hospital transfer, the transferring hospital managed episodes of dysautonomia with Ativan, which had minimal effectiveness
• Upon admission, the primary admitting team placed her on beta blockers and baclofen, with limited effectiveness
• On transfer to PM&R, the patient was switched to Valium (Baclofen discontinued) for management of spasms. Palliative care was consulted.
• Moderate improvement of posturing was observed with addition of Morphine and Methadone
• Gabapentin was initiated for neuro-irritability, followed by clonidine to minimize sympathetic outflow
• Cyclobenzaprine was added in an effort to improve spasticity. On the same day, Botox was performed to cervical and paraspinal musculature
• In subsequent days, marked improvement was observed in posturing and dysautonomia
• Continued adjustment of medications led to temporary improvement of her posturing
• Improvement lasted 48 hours, then posturing episodes resumed, with decreased intensity and duration
• Non pharmaceutical measures such as positioning, music therapy, and olfactory stimulation were also found to calm the patient during her episodes

Results
She was discharged home two months after her initial injury with significant improvement in her posturing episodes, most noticeably following administration of Cyclobenzaprine and Botulinum Toxin. She continues to be seen as an outpatient by PM&R.

Conclusion
It remains unclear which medications, procedures, or non-pharmacologic intervention provided the most benefit; as each intervention had temporizing effects on posturing. While Cyclobenzaprine has been noted as a possible medication for postural reduction, Botulinum toxin remains a less often attempted and utilized option, and is worth further study. Ultimately, recovery may be attributed to brain plasticity or diaschisis over time.

Discussion
Dysautonomia is a known sequela of acquired brain injury with onset of symptoms occurring days to weeks after the injury. An array of medications have been utilized in the treatment of dysautonomia, including: opioid agonists, centrally acting alpha-agonists, beta blockers, benzodiazepines, and gabapentin, but optimal therapeutic regimen remain unclear.