



A Scorecard to Detect Intrathecal Baclofen Withdrawal in Post-operative Patients: A Retrospective Validation Study

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Introduction

Intrathecal baclofen (ITB) is an effective chronic therapy for patients with spasticity and dystonia. Intrathecal administration is advantageous over enteral medication because ITB has limited systemic absorption and greater potency. However, issues with the ITB pump can arise following surgical procedures, particularly near the spine. If catheter flow is inadvertently disrupted during surgery, drug delivery may be interrupted and cause ITB withdrawal syndrome, a potentially life-threatening complication. Early recognition can be challenging because the clinical presentation of abrupt ITB withdrawal mimics common post-operative symptoms. ITB withdrawal can also mimic malignant hyperthermia or sepsis, not uncommon problems in this population. No tool currently exists to screen for ITB withdrawal in patients and there is a need to improve the detection of ITB withdrawal in complex patients, especially after surgery. Our objective was to create and test a tool to detect ITB withdrawal that is convenient and usable for a broad range of clinicians with no prior experience with the diagnosis of ITB withdrawal.

Methods

We consulted the literature and clinicians with expertise in ITB withdrawal syndrome and developed a scorecard that includes the major signs of ITB withdrawal.

Example of Scorecard								
	Baseline	Post-op Day 1	Post-op Day 2	Post-op Day 3	Post-op Day 4	Post-op Day 5	Post-op Day 6	Post-op Day 7
Itching = 1	0	0	0	0	0	0	0	0
ΔSBP >20 or ΔDBP >15 = 1	94 / 59	0	1	1	1	1	1	0
↑HR >20 = 1	84	1	1	0	0	0	0	0
Temp >38.5°C = 1	0	0	0	0	0	0	0	0
Agitation = 1	0	1	1	1	1	0	0	0
Insomnia = 1	0	0	1	1	0	0	0	0
Hallucinations = 1	0	0	0	0	0	0	0	0
Ashworth R leg	2	3	4	3	3	2	2	2
Ashworth L leg	2	3	4	3	3	2	2	2
Clonus <10 beats = 1; >10 beats = 2	0	0	0	0	0	0	0	0
Seizure = 1	0	0	0	0	0	0	0	0
Total Score	4	8	12	9	8	5	5	4

A representative scorecard illustrating the post-operative course with points assigned for specific clinical symptoms and signs.

A score increase of 3 or greater above the Pre-op Baseline score should trigger evaluation for baclofen withdrawal. The symptoms of baclofen withdrawal are: pruritis, tachycardia hyperthermia, hypertension or hypotension, agitation, hallucinations, insomnia increased spasticity and clonus, seizures

For this pilot scorecard, a “positive” result was defined as a score increase of 3 or more from the pre-operative Baseline score. We collected data on patients post-operatively for 7 days. As a medical student with no experience in diagnosing ITB withdrawal, I found that it was easy to collect data for the scorecard because it did not require extensive training, medical expertise, or clinical judgment. This is the completed scorecard of a patient who experienced ITB withdrawal for a few days, after which it was discovered that the ITB pump was empty due to a missed refill. If the scorecard had been utilized in the care of this particular patient, it would have been “positive” on the first day of observation and the diagnosis of baclofen withdrawal syndrome would have been earlier, prompting earlier evaluation of the pump.

Results

With IRB approval, we tested the scorecard on a retrospective cohort of 33 children with increased risk of ITB withdrawal. The median age was 14 years (range 8-21), and three (9.1%) had confirmed ITB withdrawal. The pilot scorecard had 100% sensitivity, 82% specificity, 33% positive predictive value, and 100% negative predictive value.

Conclusions

The ITB Withdrawal Scorecard is an easy-to-use screening tool that may improve detection of ITB withdrawal, especially when used by providers with minimal experience with diagnosing this potentially serious condition. Our goal was to develop a tool to trigger a consult from experienced ITB providers, and we demonstrated feasibility. Validation in a prospective multicenter cohort is needed.

Learning Objectives

By the conclusion of this session participants should be able to 1) List symptoms and signs of ITB withdrawal, 2) Recognize the clinical challenge of diagnosing ITB withdrawal in the context of other common clinical scenarios in this population, 3) recognize the need to promptly involve experienced providers in the management of patients with ITB withdrawal.

References

Coffey RJ, Edgar TS, Francisco GE, Graziani V, Meythaler JM, Ridgely PM, Sadiq SA, Turner MS. 2002. Abrupt withdrawal from intrathecal baclofen: recognition and management of a potentially life-threatening syndrome. Arch Phys Med Rehabil 83:735-41.