

HISTORY

- SCENARIO:**
A patient with tetraplegia was experiencing Autonomic Dysreflexia (AD).
- LIKELY CAUSE:**
Over distended bladder.
- QUESTION:**
How much urine should be drained?
- ANSWER:**
 - 800 ml/clamp?
 - 1000 ml/clamp?
 - Drain it all?
 - Current practice not clearly defined.
 - At the discretion of the practitioner.
 - Not unique to SCI patient population.

PICO QUESTION

In SCI patients experiencing AD and rehabilitation patients with various diagnoses determined to have an over distended bladder, how much urine should be drained from the bladder at one time to avoid adverse events such as continuing symptoms of AD, syncope, dizziness, or hematuria?

AUTONOMIC DYSREFLEXIA

SCI above C-6 may develop sudden headache, sweating, high blood pressure, dysrhythmia, convulsions, intracranial bleed, and acute neurogenic pulmonary edema as a result of AD .
Case Report-Vaidyanathan et.al (2006)

The most common cause of AD is bladder distention .
Spinal Cord Medicine Clinical Practice Guidelines 2nd Edition

ACUTE OVER DISTENDED BLADDER

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COMPLETE RAPID DRAINAGE

PRO

- Tetraplegia with blocked urinary catheter should be seen urgently.
Case Report-Vaidyanathan et al. (2006)
- Non pharmacological approaches should be used in preventing or alleviating AD including relieving obstruction of urinary flow.
Braddom & Rocco (1991)
- 10 patients-outlet of first 100 ml lowers intravesical pressure to almost normal. Fractionizing beyond this volume is pointless.
Small Experimental Design-Christensen et al (1987)
- Decrease in intravesical pressure of approximately 50% with removal of the first 100 ml of urine.
Systematic Review-Nyman et al (1997)
- Bladder damage due to infection, length of time urine pooled in the bladder, not bladder decompression.
Single Case Experimental Design-Bristoll et al (1989)
- Decrease in BP with quick, complete bladder emptying which results in normalization of BP.
Systematic Review-Nyman et al (1997)
- Quick, complete emptying causes hematuria in 2-16 % of patients but no report of severe hematuria.
Systematic review-Nyman et al (1997)
- Animal studies suggest hematuria from bladder wall damage before IC and unrelated to rate of release.
Systematic review-Nyman et al (1997)
- Draining bladder a controlled amount at a time, draining-clamping over and over is difficult and if done incorrectly can lead to another episode of over distention.
Expert Opinion-Linsenmeyer (2013)

CON

- Tetraplegia patient with episodes severe hypotension and syncope following IC. Recommend gradual decrease in bladder volume and avoid meds with orthostatic hypotension side effect.
Case Study-Previnaire & Solaire (2006)
- Intermittent clamping recommended to prevent hypotension (due to vagolytic response from rapid change in bladder wall tension) and hematuria often ascribed to rapid bladder decompression.
Systematic Review-Policastro et al (2011)



LITTLE EVIDENCE FOUND

Outdated, anecdotal, of limited sample size, or expert opinion

INDICATION

Complete and rapid emptying of the bladder is

BEST PRACTICE

CHANGE of PRACTICE PROPOSAL

COMPLETE AND RAPID URINE DRAINAGE of all patients with an acute over distended bladder including those with SCI

PROPOSAL ACCEPTED

RESULTS

AFTER 3 MONTHS

12 Written Reports
Numerous Verbal Reports

	# of events
Syncope	0
Dizziness	0
Frank Hematuria	0
Continuing AD	0

All rehab diagnoses including SCI

CONCLUSIONS

- Much of practitioner knowledge based on myth or tradition
- Results of practice change reinforce literature

Complete and rapid decompression

of an acute over distended bladder is

BEST PRACTICE