

Intra-Operative Hypotension is an Important Modifiable Risk Factor for Major Complications in Spinal Fusion Surgery

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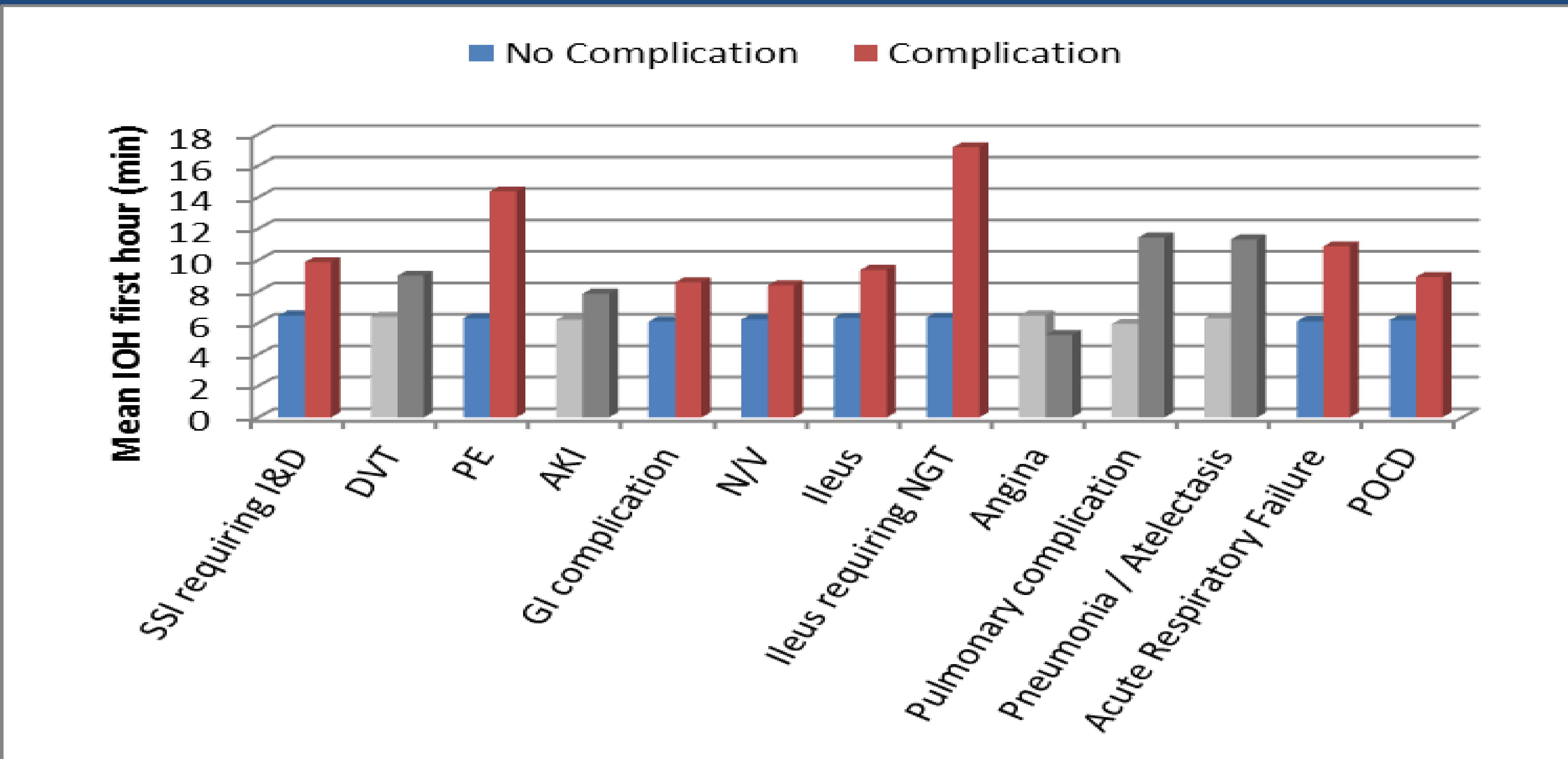
Background / aims

- Intraoperative hypotension (IOH) is associated with postoperative complications
- Spinal deformity surgery: IOH is a contributing factor to MEP changes and spinal cord dysfunction with deformity correction
- We examined the association between IOH and postoperative complications for major thoracolumbar spine fusion procedures

Methods

- 539 thoracolumbar fusion cases, > 6 surgical levels and > 3 hrs
- Anesthetic/surgical data
- Timing of IOH
- Post-op course and complications

Duration of hypotension and vasopressor used stratified by the number of post-operative complications				
	0	1-2	≥ 3	p-value
N	345 (64%)	183 (34%)	11 (2%)	
Intraop Hypotension, min, Mean (SD)	19.31 (34.5)	27.02 (42.00)	45.64 (54.2)	0.010
Intraop Hypotension first hour, min, Mean (SD)	5.49 (7.27)	7.58 (9.61)	18.18 (20.19)	<.001
Intraop Hypotension after first hour, min, Mean (SD)	13.82 (31.66)	19.44 (37.17)	27.45 (35.93)	0.100
NorEpinephrine Equivalents, mcg, Mean (SD)	6840.51 (8599.29)	9198.66 (9223.37)	10223.37 (9343.37)	0.004
Calcium Chloride, mL, Mean (SD)	56.09 (220.12)	152.19 (429.89)	136.36 (323.34)	0.003



Results

- IOH vs total complications
 - 0-60 min of surgery
 - 8.2 vs 5.6 min, p<0.001
 - For the entire procedure
 - 28.1 vs 19.3 min, p=0.008
- Association persisted for individual major complications
- ≥ 3 complications = more IOH in first hour of surgery

Discussion

This study identifies duration of intraoperative hypotension as a previously unrecognized modifiable risk associated with multiple major complications for multi-level lumbar fusion surgery