

Epidural analgesia and post-operative ileus after incisional hernia repair with transversus abdominis release: results of a 5-year quality improvement initiative

QI Summit 2024

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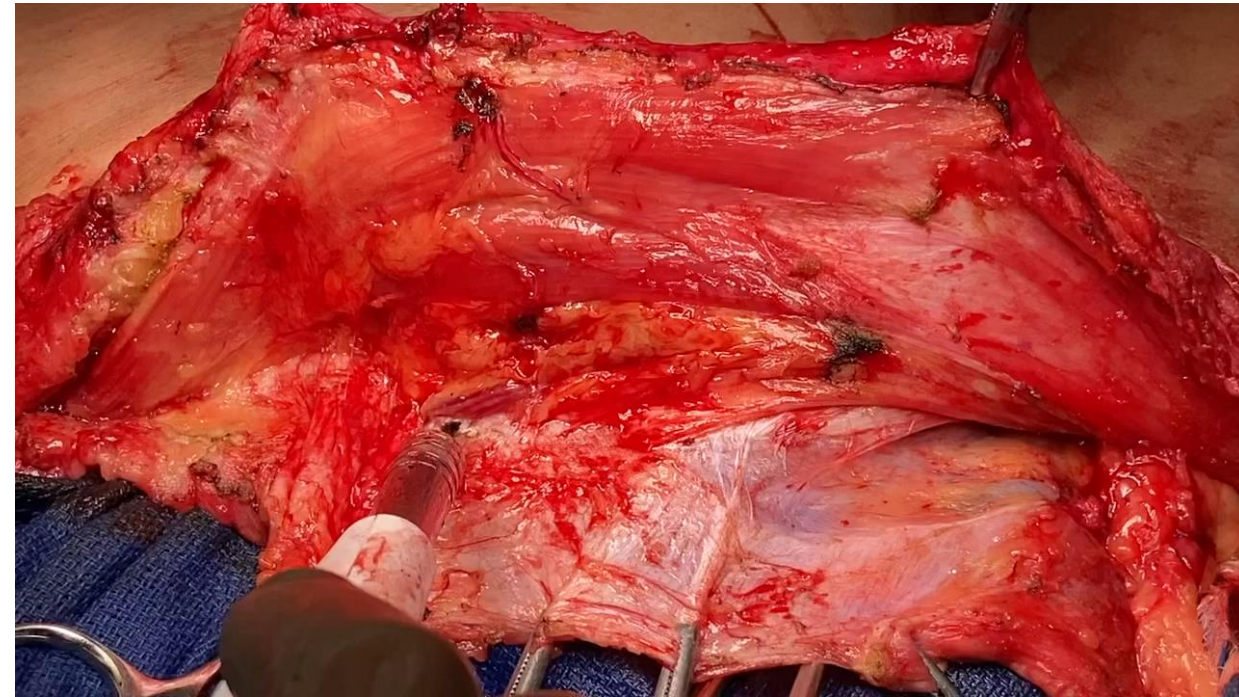
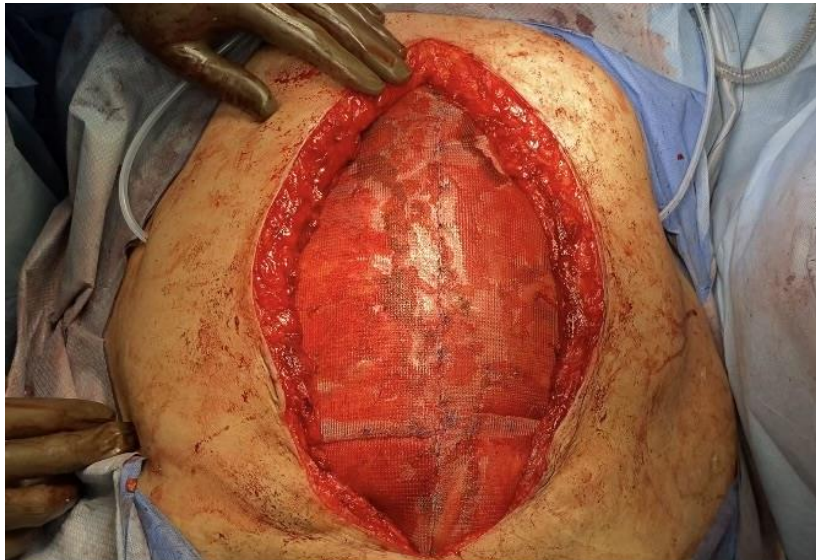
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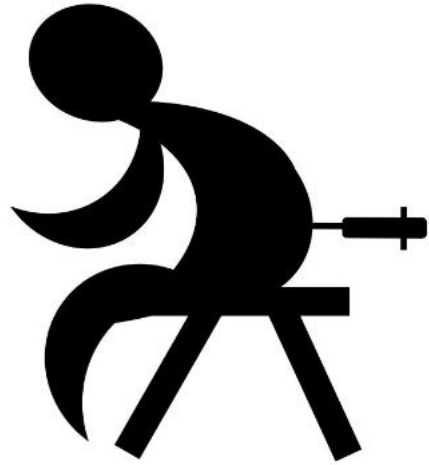
Open VHR with Transversus Abdominis Release

- Extensive adhesiolysis
- Wide dissection into the abdominal wall to allow myofascial release
- Muscular transection



- Postoperative pain
- Ileus in up to ~25% of patients

Pain Management in VHR



Epidural



Transverse
Abdominus Plane
(TAP) block



Opioids:
Patient controlled
analgesia

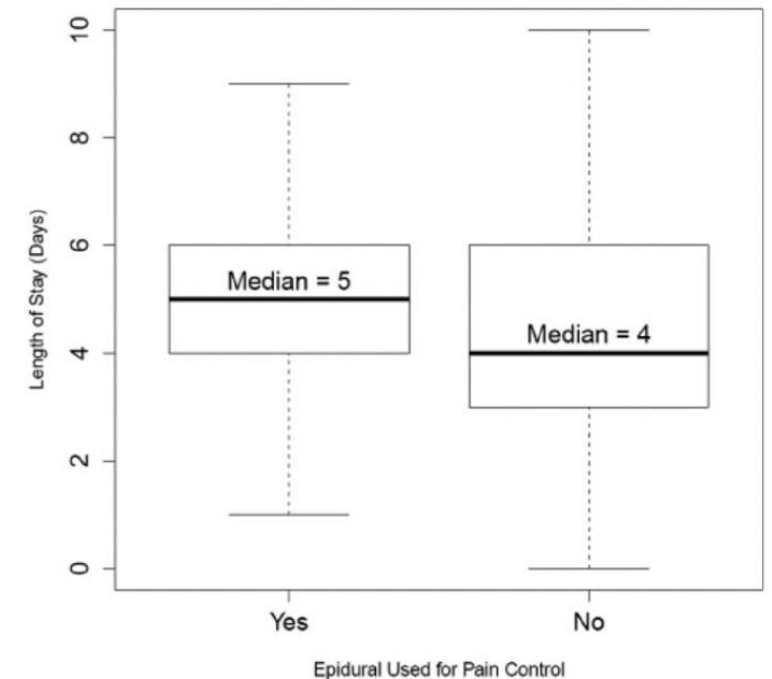
Ideal pain management strategy remains unknown

Is It Time to Reconsider Postoperative Epidural Analgesia in Patients Undergoing Elective Ventral Hernia Repair?

An AHSQC Analysis

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- 1034 (38.8%) with epidural vs 1629 (61.2%) without
- No benefit in length of stay, wound morbidity or any postoperative complication
- No improvement in 30-day QOL



The benefits of epidurals noted in previous literature may not be broadly applicable to patients undergoing VHR



Epidural Abandonment at CCF



RANDOMIZED CONTROLLED TRIAL

The Efficacy of Liposomal Bupivacaine on Postoperative Pain Following Abdominal Wall Reconstruction

A Randomized, Double-blind, Placebo-controlled Trial

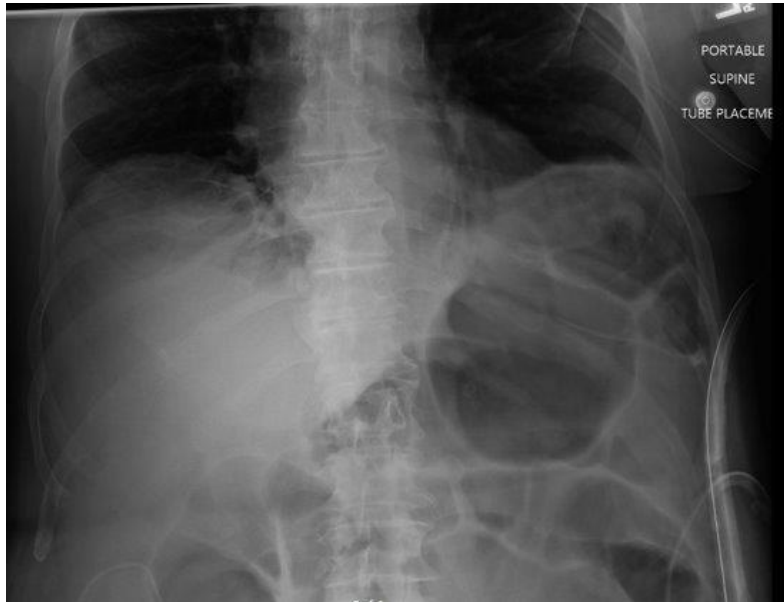
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- Surgeon directed TAP blocks: bupivacaine vs liposomal bupivacaine vs saline

No differences in postoperative pain scores or opioid use
Postoperative ileus rate 18.9%

Postoperative Ileus

- Nausea and vomiting requiring **nasogastric decompression**



Aim

- Quality improvement initiative
- Patients with open posterior component separation with TAR and retromuscular synthetic mesh
- Evaluate postoperative complications and outcomes ***after discontinuing epidurals:***
 - Ileus rates
 - Venous thromboembolism (VTE), pneumonia
 - Wound morbidity
 - Length of stay
 - QOL, recurrence



Methods

- Retrospective review
 - Abdominal Core Health Quality Collaborative
 - **Cleveland Clinic only**
 - 2014-2017 with epidurals vs 2018-2022 without epidurals
- Open VHR with TAR and at least 30-day f/u



Patient Characteristics

Variable	With epidural n = 420	No epidural n = 2150	p-value
Age, y, median (IQR)	60 (51-67)	61 (52-58)	0.09
BMI, kg/m ² , median (IQR)	32.4 (28.4-35.9)	32 (28.3-35.8)	0.3
Diabetes mellitus, n (%)	92 (21.9)	505 (23.5)	0.5
Smoking, n (%)	20 (4.89)	154 (7.17)	0.15
ASA, n (%)			
1	1 (0.2)	5 (0.2)	0.06
2	80 (19.0)	304 (14.1)	
3	325 (77.4)	1779 (82.7)	
4	14 (3.3)	62 (2.9)	
Immunosuppressants, n (%)	21 (5.0)	211 (9.8)	0.02
Hx of abdominal wall infection, n (%)	119 (28.3)	472 (22.0)	0.01
Recurrent hernia	224 (53.3)	1183 (55.0)	0.56
Hx of component separation	30 (7.1)	233 (10.8)	0.03

- **2570 TARs** from CCF
- More patients with history of **abdominal wall infection** and **component separation**



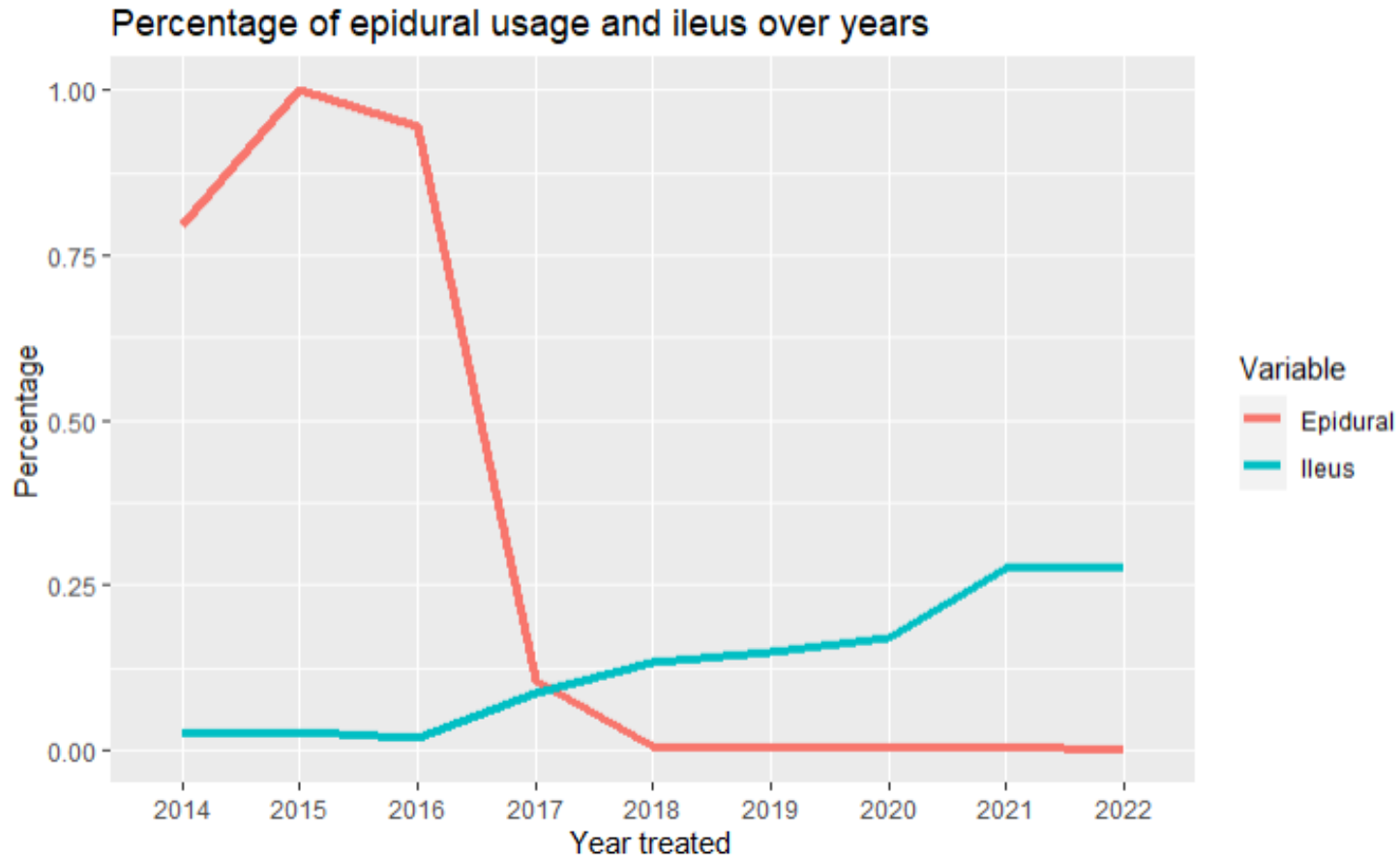
Hernia Characteristics

Variable	With epidural n = 420	No epidural n = 2150	p-value
Wound class			
Clean	314 (74.8)	1575 (73.3)	0.93
Clean-contaminated	53 (12.6)	291 (13.5)	
Contaminated	52 (12.4)	279 (13.0)	
Dirty	1 (0.2)	5 (0.2)	
Hernia width cm, median (IQR)	15 (11-20)	15 (12-19)	0.03
Hernia length cm, median (IQR)	22 (18-25)	23 (20-27)	0.001
Mesh width cm, median (IQR)	30 (30-39)	30 (30-50)	0.001
Mesh length cm, median (IQR)	30 (30-36)	30 (30-50)	0.03
Fascial closure, n (%)	394 (93.8)	2016 (93.9)	1
Operative time, n (%)			
60-119 min	43 (10.2)	195 (9.1)	0.53
120-179 min	126 (30.0)	663 (30.8)	
180-239 min	127 (30.2)	587 (37.3)	
>240 min	124 (29.5)	702 (32.7)	

- No epidural → Slightly bigger hernias and mesh
- Similar fascial closure rates and operative time



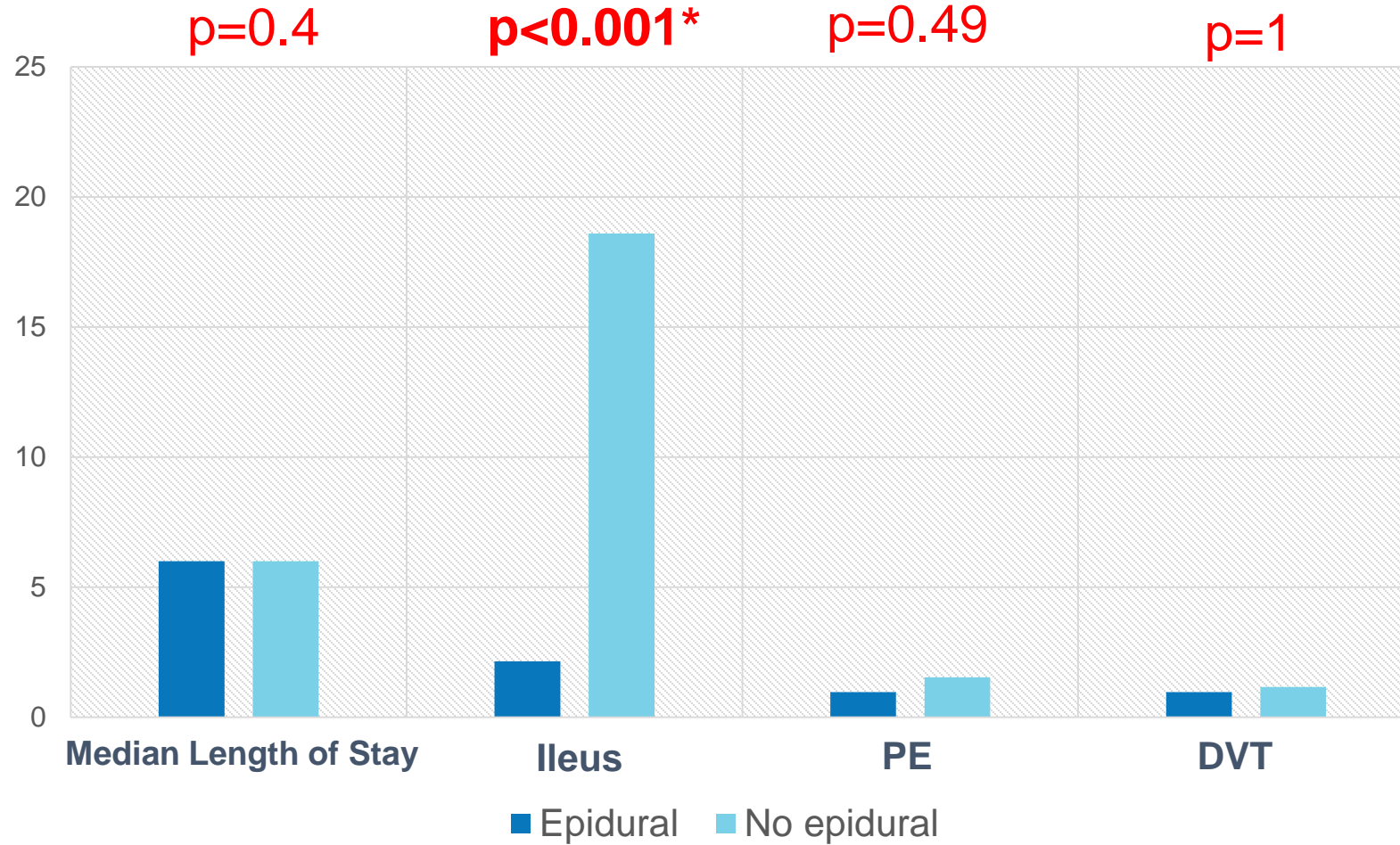
Ileus Over Years



- Epidural usage stopped in 2016
- After 2018, essentially no epidural use



30-day Outcomes, univariate analysis

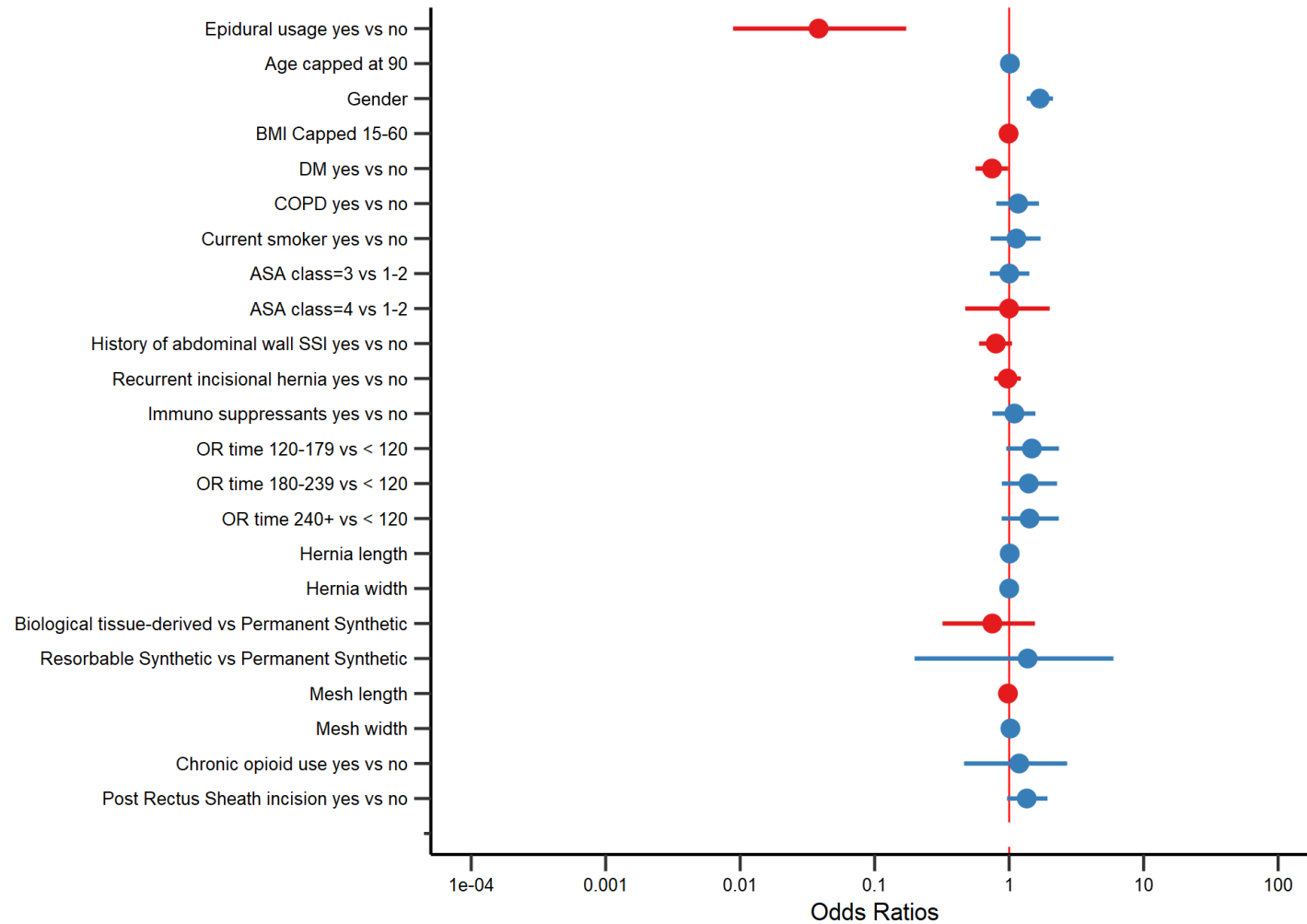


****9-fold increase
in ileus***



Multivariable Analysis for Ileus

Odds Ratios with 95% CI of Ileus



Epidural use → Independently associated with decreased post-op ileus (OR 0.04, CI 0.01-0.17, p=0.001)

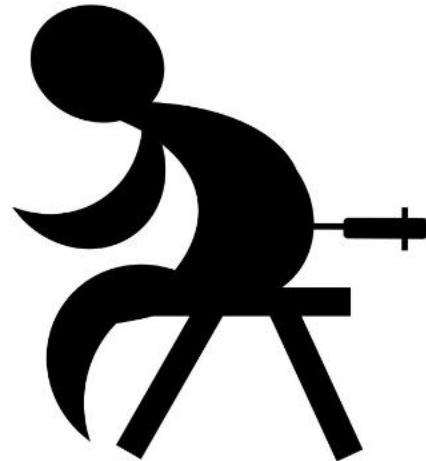
Discussion

- Several contributing factors to postoperative ileus; our data indicate epidural use was **independently associated**
- Ileus may also be explained by **increased complexity** of no epidural patients
- Length of stay remained unchanged regardless of epidural





Conclusion

- Abandonment of epidurals at CCF → **unexpected 9-fold increased rate of postoperative ileus**
- Risks of epidurals in open VHR patients remain unknown
- Further prospective work needed to identify ideal postoperative pain management strategy in open VHR patients



ORIGINAL RESEARCH ARTICLE | ARTICLES IN PRESS

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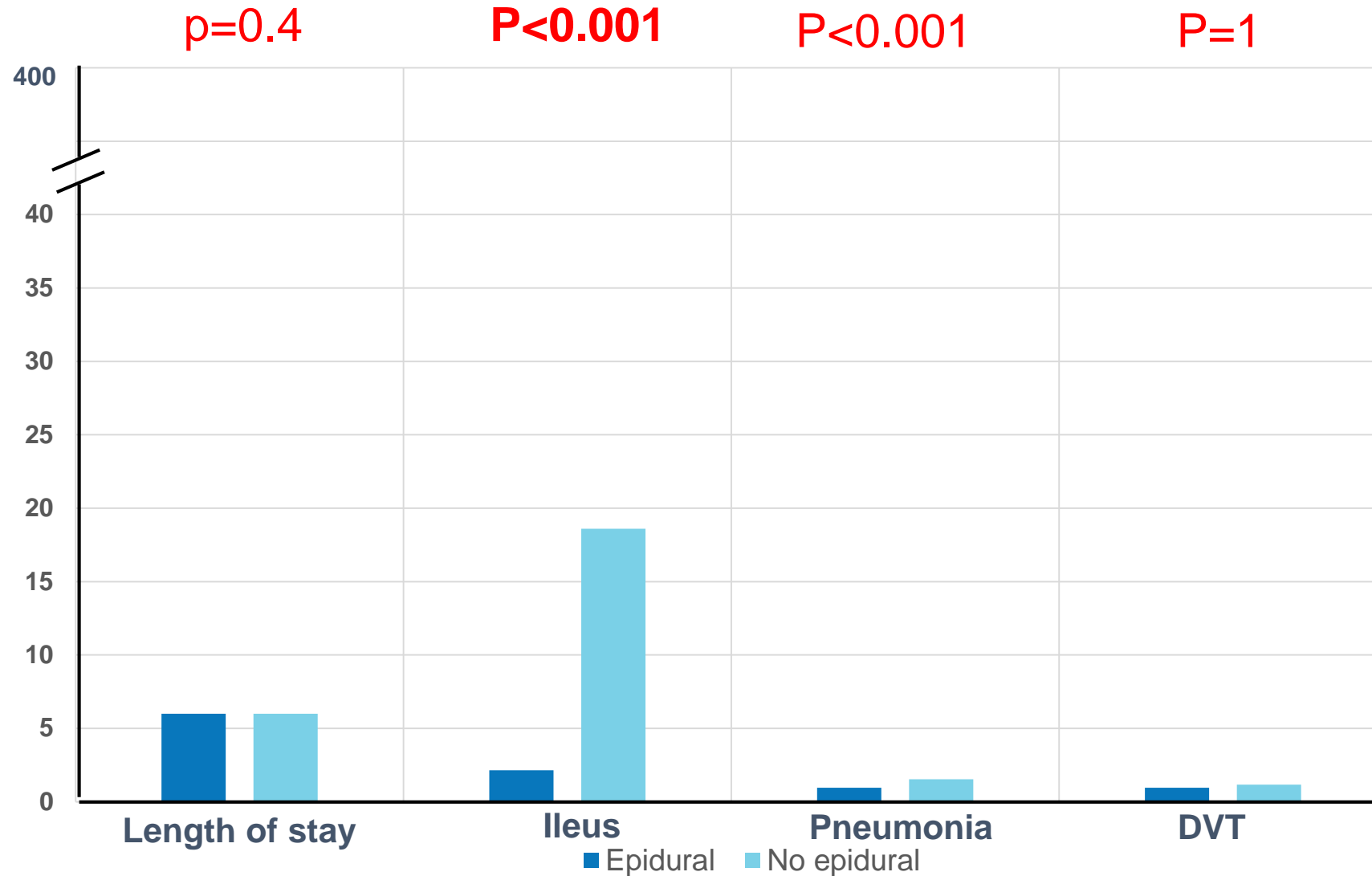
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Thank you!

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30-day Outcomes, univariate analysis



1 Year Outcomes – QOL & Recurrence

49% F/u 55% F/u

Mesh type/location	n	With epidural	No epidural	P-value
HerQLes Baseline, mean (SD)	1828	34.9 (23.9)	37.2 (26.3)	0.56
30 days, mean (SD)	1799	38.5 (26.3)	46.6 (27.4)	0.01
1 year, mean (SD)	1265	70.0 (26.8)	70.8 (27.3)	0.63
Consensus recurrence 1 year, n (%)	1397	36 (17.6%)	287 (24.1%)	0.051

- QOL improved
- Consensus = radiographic + clinical + PRO
- "Do you feel or see a bulge?"
- **No differences in recurrence**





Cleveland Clinic

Every life deserves world class care.

Hernia Recurrent Inventory (HRI)

- Do you feel your hernia has come back?
- Do you feel or see a bulge?
- Do you have physical pain or symptoms at the site?
- Have you had additional surgery since your hernia operation?



Multivariable Analysis for Length of Stay

Odds Ratios with 95% CI of Dichotomized LOS

