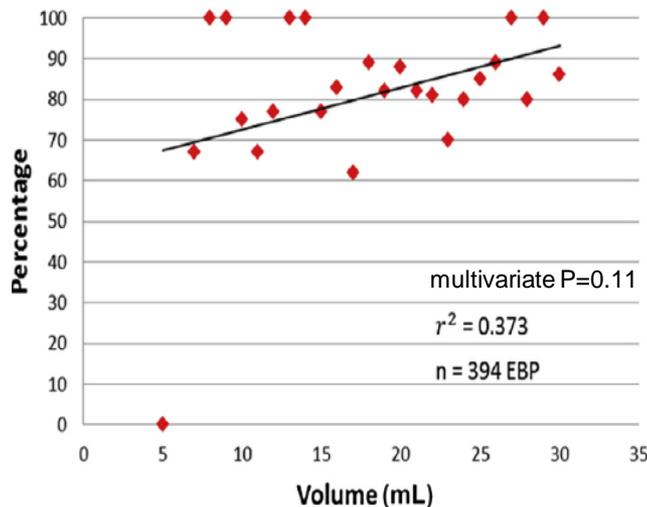
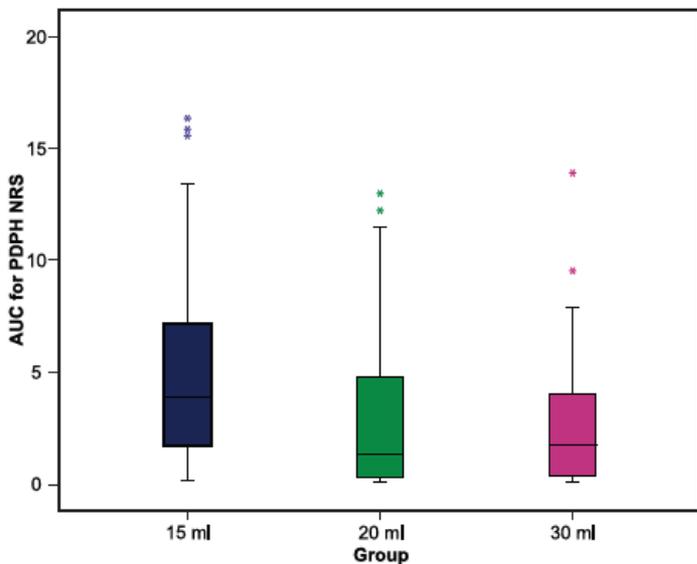


# Association between Injectate Volume and Epidural Blood Patch Success: A Retrospective Cohort Study

Amnon A. Berger, MD, PhD<sup>1</sup>; Samantha L. Armstrong, BS<sup>1</sup>; Yunping Li, MD<sup>1,2</sup>; Philip E. Hess, MD<sup>1,2</sup>

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## Introduction

- PDPH – 1% of neuraxial procedures (4.7% of post-partum headaches)
- Potential for severe sequelae and chronic HA

## Challenges and Hypothesis

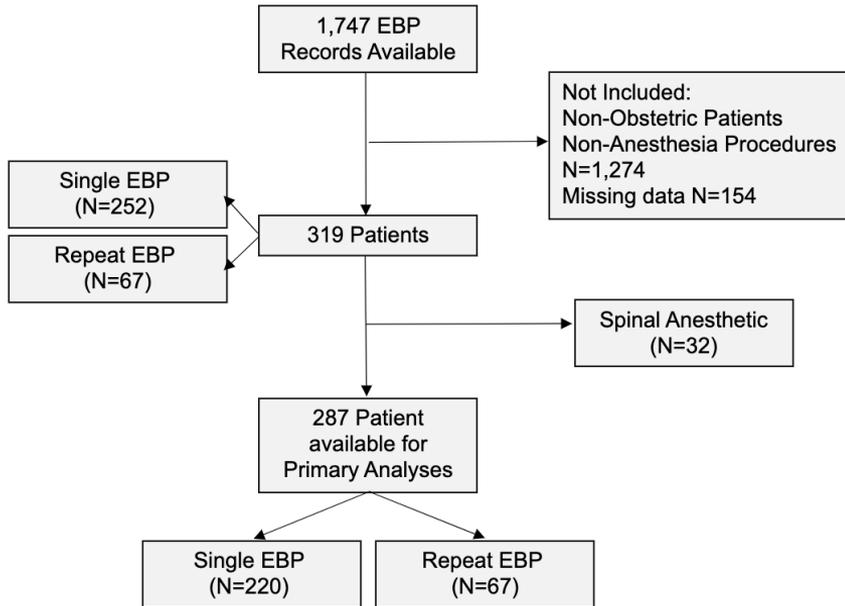
- EBP - Variable (33%-98%) success reported
- Multiple factors may influence success
- What is the optimal injectate volume?
- Hypothesis: success increases with volume



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Characteristic	Patients (N=287)
<b>Delivery Mode</b>	
Cesarean	54 (19%)
Vaginal	233 (81%)
<b>Neuraxial Procedure</b>	
CSE	226 (79%)
DPE	11 (3.8%)
Epidural	50 (17%)
<b>Multiple Neuraxial Procedures</b>	20 (7.0%)
<b>Known Dural Puncture with Large Needle ("Wet Tap")</b>	96 (33%)
<b>Positive Epidural Catheter Aspiration</b>	80 (28%)
<b>Intrathecal Catheter use for Anesthesia</b>	33 (11%)
<b>Days between Neuraxial and PDPH</b>	1.47 ± 2.00
<b>PDPH and EBP</b>	1.38 ± 2.21
<b>Neuraxial and EBP</b>	2.85 ± 3.00
<b>Blood Volume Injected (ml)</b>	27.23 ± 7.29

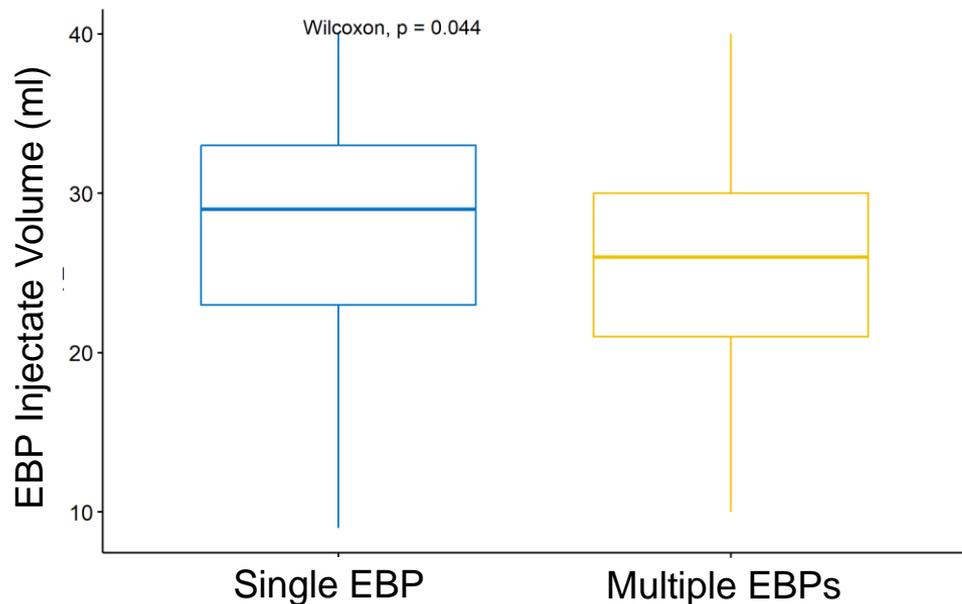


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Characteristic	OR <sup>1</sup>	95% CI <sup>2</sup>	p-value
<b>EBP Blood Volume</b>	0.96	0.92-1.0	<b>0.03</b>
<b>Mode of Delivery</b>			
Cesarean (Ref)	-	-	
Vaginal	1.87	0.64-6.86	0.29
<b>Neuraxial Procedure</b>			
CSE (Ref)	-	-	
DPE	0.31	0.02-1.77	0.28
Epidural	0.94	0.43-1.96	0.86
<b>Day between:</b>			
Neuraxial to PDPH	0.97	0.80-1.12	0.74
PDPH to EBP	0.61	0.43-0.81	<b>&lt;0.01</b>

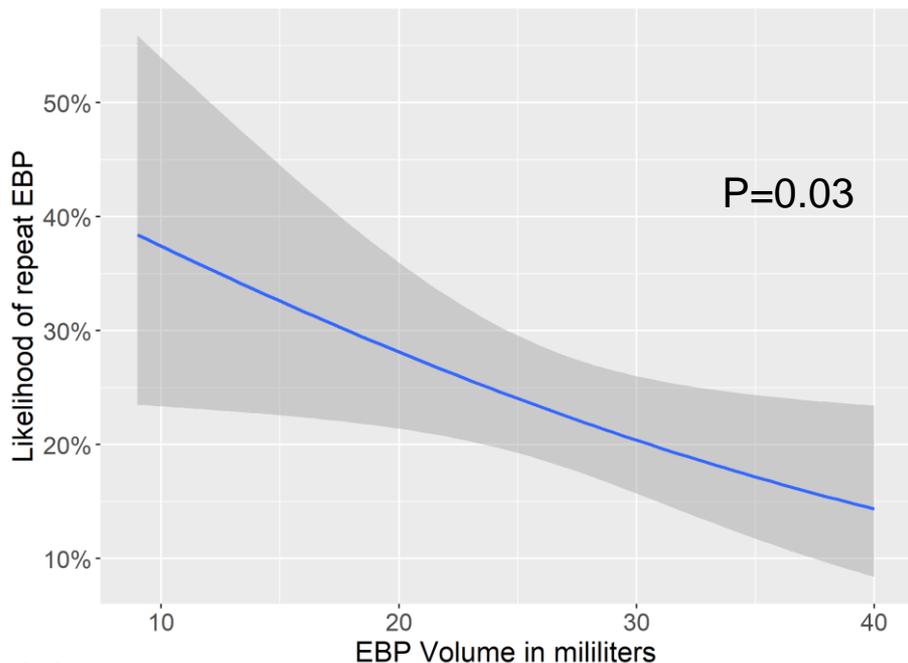


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## Take home points

### Univariate:

- Volume (mean  $27.3 \pm 7.3$ )
- Days from NA to PDPH
- Days from PDPH to EBP

### Multivariate:

- Odd ratio (OR) 0.96 / 1ml injected (p=0.028)
- OR 3.0 for resolution of symptoms with injection > 30ml (p=0.047)

## Conclusion

- Significant inverse relationship between EBP injectate volume and likelihood of repeat EBP
- Prospective trial design underway