Unilateral Epidural Block- Myth or Reality?

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Introduction

- Epidural block technique common for postoperative analgesia, but failure rates are reported from 5 to 30% [1].
- A unilateral epidural block has been previously described [2- 6].
- In unilateral lower limb surgery, a **contralateral block**, i.e., unilateral block of the non- operative side can be considered as cases of definite epidural failure

The purpose of this retrospective study is to

- identify the incidence of failure of epidural analgesia in patients who underwent unilateral lower limb vascular surgeries and
- determine the contribution of contralateral epidural blockade to failure.

The hypothesis was that the combined spinal- epidural technique and length of catheter in epidural space would increase the incidence of contralateral epidural block and contribute to the failure of epidural analgesia.

Methods

- Retrospective Chart Review, **OHREB Protocol#** 2011626-01H
- Consecutive patients for unilateral lower limb vascular surgeries- epidural analgesia between January 2008 to July 2010 identified
- **Surgeries-** femoro- popliteal and femoro- distal bypass surgeries, below and above knee amputation.
- **Data-** demographics, type and side of surgery, preoperative analgesic medications, epidural catheter insertion level, depth and the level of epidural catheter fixed at skin, numeric rating scale (NRS) at rest and activity and epidural block levels on both the day of surgery and first post-operative day, rate and total dose of epidural solution infused and supplemental analgesics, incidence of motor block, movement limitation by pain and patients satisfaction recorded on the day of surgery and the day after.

Criteria of epidural failure (any one)

1. inadequate pain control (NRS >5 at rest and persistent for 1 hour after a rescue of 5 ml epidural bolus injection,
2. necessity of epidural catheter replacement, or
3. the addition of IVPCA.

Results

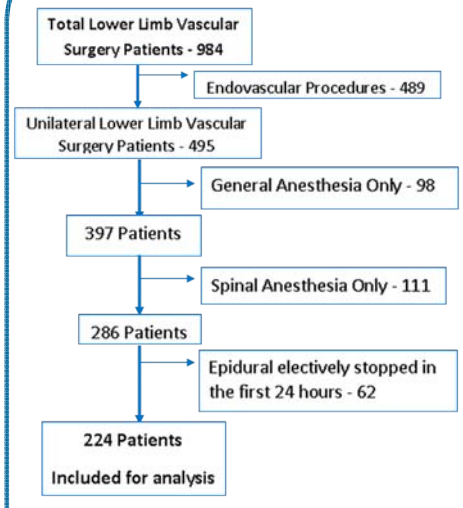


Table 1. Demographics and Procedural Characteristics

Sex- Male: Female	132 (59%): 92 (41%)
Age (Years) Mean	66.6 years (range 32- 92)
Opioid Naïve Patients	135 (60.3%)
Patients on chronic opioids	89 (39.7%)
Type of Surgery	
Femoral Popliteal Bypass Surgery	141 (63%)
Femoral Tibial Bypass Surgery	10 (4.5%)
Femoral Angioplasty /Endarterectomy	3 (3.25%)
Profundoplasty	3 (3.25%)
Below Knee Amputation	39 (17.5%)
Above Knee Amputation	19 (8.5%)
Side of Surgery	
Right	118 (52.6%)
Left	106 (47.4%)

Results

Table 2. Neuraxial techniques / Epidural analgesia failure rates

Technique	No.	Failed Block No.	Contralateral Block
CSE	151	45	11
Epidural	73	23	5
Total	224	68	16

Intentional preferential ipsilateral epidural

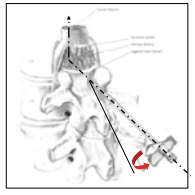
- documented in 6 patients,
- no failures and no motor block

Table 3. Characteristics of epidural technique / Total, Failed epidural numbers of patients

	Total No. of Patients	No. of failed epidurals	No. of Contralateral Unilateral block
Catheter length inside (cm)			
3	2	1	0
4 / 4.5	44	10	2
5 / 5.5	155	51	9
6	18	5	4
7	5	1	1
Epidural insertion site			
T12 – L1	4	1	1
L1 - 2	17	4	2
L2 - 3	54	15	5
L3 - 4	119	38	7
L4 - 5	30	10	2
Epidural Opioid			
Fentanyl	155	46	14
Hydromorphone	68	20	3
No opioid	1	0	0

Discussion

- Overall incidence of failure of epidural analgesia = 30.3%.
- No significant difference in failure rates between combined spinal-epidural and epidural alone
- Motor Block occurred in 50 patients with 10 of these being bilateral
- Contralateral block occurred in 16 patients, approx. 1 in 4 failures
- No association between level, depth of space, length of epidural catheter or solution used with overall failure rate or incidence of contralateral block



Preferential Unilateral Epidural

- Midline approach with 5° offset
- Turn the needle bevel by 45° towards the operative side
- Can be tested and confirmed
- May provide better quality block with lower volume
- May reduce side effects and failure

Conclusions

- Failure of epidural analgesia might be more frequent with a significant contribution of contralateral epidural block in unilateral lower limb vascular surgery patients.
- The technique of **preferential ipsilateral epidural** blockade may improve the success of epidural analgesia in unilateral lower limb surgical procedures.

References

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