Liposomal Bupivacaine use in VATS Lobectomy

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Introduction

Thoracic surgery is commonly associated with post operative pain.(1) Effective analgesia has been shown to lower incidence of respiratory complications, and lower readmission to ICU. (2) Reduction in pain may decrease length of stay and improve patient satisfaction. 10-35% of video assisted thoracostomy (VAT) patients have chronic post thoracotomy pain syndrome (CPSP) (3)

Liposomal bupivacaine is presented as a depo foam drug delivery system with multivesicular liposomes, containing bupivacaine (concentration on 13.3 mg/ml). After injection, the drug is released over an extended period of time (up to 96 hrs). (4)

Standard analgesic regimen in our centre is a two site paravertebral block (PVB), T5-T6 and T6-T7 post induction of anaesthesia, and/or surgically inserted intercostsal blocks (ICB) at the end of the procedure. Patients also receive a PCA until chest drains are removed. Following this regular mild opioids, and paracetamol, along with strong opioids, lidocaine patches, gabapentinoids and ketamine as required.

Methods

29 patients between October 2023 – May 2024 having VATS lobectomy had the pain relief protocol described above with liposomal bupivacaine mixed with levobupivacaine (20 ml 0.25 % levobupivacaine and 10 ml (133 mg) liposomal bupivacaine) for PVB and/or ICB. A control group of 29 patients having VATS lobectomy received the same pain relief protocol but with levobupivacaine alone used for regional blocks. All 58 patients' notes were retrospectively analysed looking for: length of stay, pain scores, PCA use, post PCA oral opioid use as morphine equivalence, intensive care re-admission, respiratory support required, antibiotics required. The group who received plain levobupivacaine and liposomal levobupivacaine were compared.

Conclusion

There was significantly less opioid use, lidocaine patch use, and new gabapentinoid use in the liposomal bupivacaine group. Liposomal bupivacaine use is associated with decreased length of stay compared to control group; though this was not significant.

Pain scores were lower throughout the stay in the liposomal group. There was also fewer requirement for antibiotics and ICU admissions in the liposomal group. This small data analysis seems to suggest promising results for the use of liposomal bupivacaine over levobupivacaine alone for regional anaesthesia in VATS lobectomy. Further study with increased patient numbers, or ideally a randomized control trial, is required to evaluate the effects of liposomal bupivacaine in clinical use.

Results

Please see table 1 and fig 1 for results. Overall, length of stay, opioid use, and gabapentinoid initiation were all reduced in the liposomal group.

Outcome	Liposomal n=29	Plain n=29	p value
Mean PCA use in 96 hours (mg)	18.84	40.67	0.004
Mean oral morphine equivalent (MME) use in 96 hours (mg)	37.21	50.38	0.03
Lidocaine match use (%)	3.4	75.9	<0.001
New Gabapentinoids (%)	20.7	55.2	0.007
Median length of stay (days)	3	4	0.15
Antibiotics required (no. patients)	4	7	
ICU re-admission (no. patients)	1	3	

Table 1

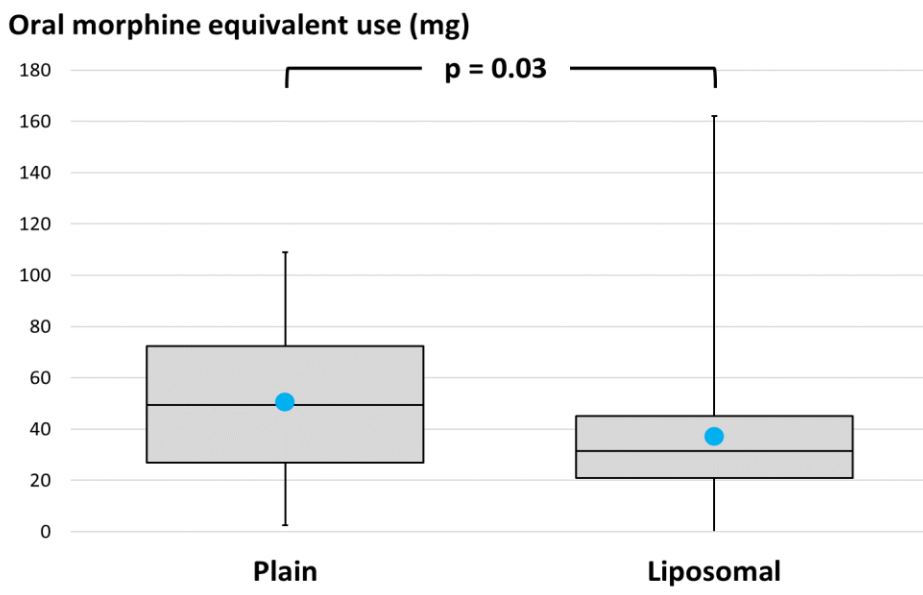
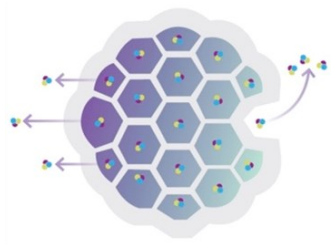


Fig 1



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Conflict of Interests: Nil

Acknowledgements

Consultant Surgeon Mr Shackcloth and Consultant Anaesthetists Dr Bhawnani and Dr Chambers. Matthew Shaw for his input with statistics. Jenny Chauveau pain nurse specialist for her input in this work.