

Precision Sedation: Reducing general anaesthesia for lumbar punctures in patients with leukemia and lymphoma



Karen Arane¹, Daphne Li², Tara Baxter¹, Bina Gandhi¹, Karyn Positano¹, Melissa Howlett¹, Devon Williams¹, Kishon Manoharan¹, Tobias Everett², Sarah Alexander¹

¹Division of Haematology/Oncology, The Hospital for Sick Children, Toronto, Canada ²Division of Anesthesia, The Hospital for Sick Children, Toronto, Canada



BACKGROUND

LPs in Acute Lymphoblastic Leukemia (ALL)

98%



LPs completed with general anesthesia in North America

>20 LPs in ALL protocols



ALL survivors at increased risk for neurocognitive impairment

- Children and adolescents with leukemia require multiple lumbar punctures (LPs) for the delivery of intrathecal chemotherapy.
- In North America, this procedure is most commonly done under general anaesthesia (GA), typically using propofol.
- There is a growing body of evidence that cumulative exposure to propofol is associated with risks of neurocognitive impairment.

OBJECTIVES

Primary Goal:

TAILOR THE AMOUNT OF SEDATION TO EACH PATIENT & LIMIT EXPOSURE TO GA

Secondary Goals:



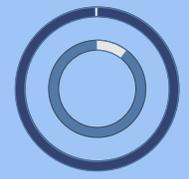
RESULTS

18 PATIENTS Successfully completed an LP with PS	82 AWAKE LPs Total number of LPs completed without GA	14 CONTINUED Have had multiple LPs with PS	2 RESCHEDULED Patients unable to complete LP with PS
---	--	---	---

AGE DISTRIBUTION		# OF LPs		SEDATION TYPE	
5-9:	6	1:	1	LOCAL ONLY:	15
10-14:	5	2-4:	11	+MIDAZOLAM:	61
15-18:	7	5+:	6	++NITROUS OXIDE:	6

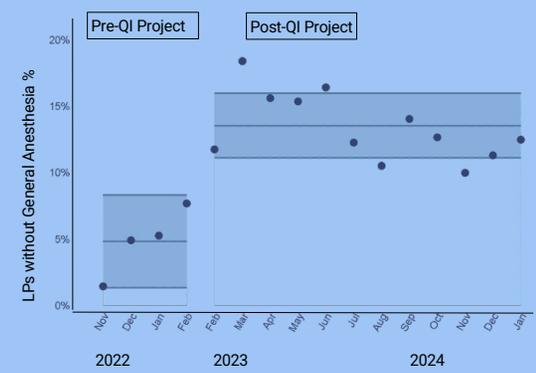
100% SATISFACTION
All reported they were moderately or extremely (1) happy with the medicines they received for their LP and (2) the staff made them feel comfortable during their procedure

10% PAIN
90% reported none to moderate amounts of pain during their LP



10 patients completed post-LP survey

Percentage of patients completing LPs without GA



SURVEY RESULTS

WHAT WAS MOST HELPFUL?	ADDITIONAL COMMENTS
<ul style="list-style-type: none"> the staff comforting me and letting me know what was happening having Mom and watching ipad being able to eat beforehand, staff very friendly/encouraging nurse stroking my hair, playing music, mom in the room when my dad got to stay with me 	<ul style="list-style-type: none"> Mom: very happy that my child's LP has been done with less medication while she was awake be more gentle when looking for the spot, medication to work more Age appropriate toys

METHODS

PATIENT SELECTION

- A ELIGIBLE PATIENTS:** 5-18 yo with ALL, lymphoblastic lymphoma, mature B non-Hodgkin lymphoma, Burkitt leukemia
- B EXCLUSION CRITERIA:** Patients in induction or scheduled for concomitant bone marrow aspirate/biopsy
- C PARTICIPATING PATIENTS:** Scheduled for their next IT chemotherapy with local anesthesia or anxiolytic instead of GA

CONCLUSION

With this QI project of PS we have established a practice that allowed a subset of patients to safely, and without excess distress or discomfort, undergo sequential LPs with minimal or no sedation. Additional observed benefits included decreasing length of time in the hospital on procedure days and relief from the requirement to be fasting.

<p>INCREASE L&L PATIENTS</p> <ul style="list-style-type: none"> - Ensure all new patients are approached at diagnosis - Document in chart discussion completed regarding PS 	<p>EXPAND TO OTHER DIAGNOSES</p> <ul style="list-style-type: none"> - Many Neuro-Onc patients also require LPs as part of their treatment/diagnosis - Consider expanding to non-oncology patients 	<p>FOLLOW UP</p> <ul style="list-style-type: none"> - Reach out to patients & families who have successfully completed PS to discuss what is working/areas for improvement
--	--	--

This project was supported by the Garron Family Cancer Centre