

Neuraxial Block Assessment – Comparison between cryospray and cold metal instruments

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Introduction

We need to engage in more eco-conscious healthcare practices. Currently we test sensory blocks post neuraxial anaesthesia using ethyl chloride spray at our institution. Ethyl chloride is a toxic water-soluble substance which has detrimental effects on aquatic organisms and bird life. In 2022 we used 586 bottles of ethyl chloride. Including production, transport and disposal, this represents approximately 5,015.2 kg of Co2 waste annually.

The purpose of this quality improvement project was to determine the feasibility of reducing our carbon footprint by replacing ethyl chloride spray with reusable cold metal instruments that are licensed for use in the EU (CoolStick® are not licensed), for testing sensory block.

Methodology

50 participants were included in the two-month review.

Data was gathered by nurses in the recovery room from testing the residual sensory blocks of patients who had undergone elective or emergency Caesarean Section under neuraxial block.

We used metal surgical dilators (CE marked) that refrigerated for a minimum of 15 minutes between tests.

The patient’s blocks were assessed bilaterally, initially with cold spray and then using cold metal instruments.

The same operator performed each assessment. Left and right block levels were recorded for both spray and cold metal instrument.

Differences between the recorded sensory levels were recorded.



Results

Difference in dermatomal levels measured by cryospray and metal instruments

	Left		Right	
	Frequency	Percentage	Frequency	Percentage
Metal higher than Spray by 2	0	0	1	2%
Metal higher than Spray by 1	6	12%	5	10%
The Same	23	44%	21	40%
Spray higher than Metal by 1	19	37%	18	35%
Spray higher than Metal by 2	3	6%	7	13%
Spray higher than Metal by 3	1	2%	0	0

Conclusion

The results show good correlation of measured levels with both testing modalities. In 40-44% (right - left) of the tests the same level was detected with both cryospray and metal instrument, and in 85-92% of tests they were within 1 dermatome of each other. This level of accuracy is sufficient to support the use of cold metal instruments for testing a receding sensory block in recovery, thus reducing our carbon footprint.

More robust clinical testing is required before we can replace cryospray in theatre for pre surgery testing of sensory blocks, but our quality improvement project shows promise.

References

- Grassby, Oliver et al. Comparison of CoolStick® with ethyl chloride efficacy in the assessment of sensory block level after spinal anaesthesia: a single-centre service evaluation. British Journal of Anaesthesia, Volume 132, Issue 1, 205 - 206