



Procedural Education for Cancer-related Pain in Pain Medicine Fellowships: A National Program Survey

Alex Woodrow, D.O., OHSU, Masaru Teramoto, Ph.D., MPH, PStat, University of Utah, Mrinal Thapliyal, B.S., OHSU, and Sandy Christiansen, M.D., OHSU.



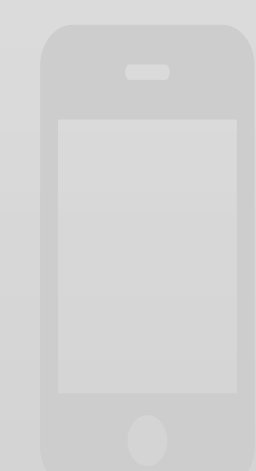
Introduction

Cancer-related pain is ubiquitous and up to 43% of cancer-related pain is reported undertreated by standard medication management strategies [Deandrea 2008]. Targeted interventional procedures may be an important and under-utilized method for improving cancer-related pain.

The goal of this study was to determine the baseline educational experience and perceived post-graduation comfort for Pain Medicine fellows in performing procedures that can be used for cancer-related pain. Educational factors that influenced respondent comfortability were evaluated to propose methods of improving procedural education in cancer-related interventions.

Methods

Using Qualtrics® software, we sent a 16-question survey to graduating fellows at accredited Pain Medicine fellowship programs in the United States in June 2022. The fellows' experiences and comfort levels in performing eight procedures were analyzed using descriptive statistics and contingency table analysis with statistical significance determined by Pearson χ^2 test.



Take a picture to view the survey!

Results

Table 1: Contingency table on experience and comfort level among fellows

Procedure	Comfort level ^b			
	Ever performed procedure	Comfortable	Not comfortable	p
Sympathetic ganglia neurolysis	Yes (n = 74)	58 (78.4)	16 (21.6)	< 0.001
	No (n = 31)	11 (35.5)	20 (64.5)	
IC pump trials	Yes (n = 56)	34 (60.7)	22 (39.3)	< 0.001
	No (n = 47)	4 (8.5)	43 (91.5)	
IC pump implantations	Yes (n = 57)	29 (50.9)	28 (49.1)	< 0.001
	No (n = 42)	2 (4.8)	40 (95.2)	
SCS trials	Yes (n = 92)	83 (90.2)	9 (9.8)	< 0.001 ^a
	No (n = 6)	1 (16.7)	5 (83.3)	
SCS implantations	Yes (n = 87)	62 (71.3)	25 (28.7)	0.002 ^a
	No (n = 10)	2 (20.0)	8 (80.0)	
PNS implantations	Yes (n = 56)	36 (64.3)	20 (35.7)	< 0.001
	No (n = 40)	4 (10.0)	36 (90.0)	
Vertebral augmentation	Yes (n = 54)	27 (50.0)	27 (50.0)	< 0.001
	No (n = 42)	3 (7.1)	39 (92.9)	
Vertebral body RFA	Yes (n = 28)	15 (53.6)	13 (46.4)	< 0.001 ^a
	No (n = 68)	1 (1.5)	67 (98.5)	

Note: Values are frequency (%); *p*-values from Pearson χ^2 tests, unless specified otherwise

^aFrom Fisher's exact test.

^bComfort level performing this procedure after graduation

Definitions: IC: intrathecal; SCS: spinal cord stimulator; PNS: peripheral nerve stimulator; RFA: radiofrequency ablation

Table 2: Fellow procedural experience in cancer-related pain

Procedure	Reported procedures performed		
	None	At least 1	5 or more
Sympathetic ganglia neurolysis	39 (37.9)	31 (30.1)	33 (32.0)
IC pump trials	64 (64.0)	27 (27.0)	9 (9.0)
IC pump implantations	55 (56.1)	26 (26.5)	17 (17.4)
SCS trials	66 (68.0)	25 (25.8)	6 (6.2)
SCS implantations	78 (80.4)	14 (14.4)	5 (5.2)
PNS implantations	87 (90.6)	5 (5.2)	4 (4.2)
Vertebral augmentations	66 (68.7)	21 (21.9)	9 (9.4)
Vertebral body RFA	87 (90.6)	8 (8.3)	1 (1.0)

Note: Values are frequency (%)

Table 3: Correlations between lectures and educational setting with comfort level

Procedure	Number of lectures for cancer-related pain (0-10)		Number of fellows in program (0-10)		Number of faculty in program (0-10)	
	r _{pb}	p	r _{pb}	p	r _{pb}	p
Sympathetic ganglia neurolysis	0.114	0.322	0.168	0.143	-0.095	0.408
IC pump trials	0.267	0.018	0.050	0.663	0.083	0.469
IC pump implantations	0.296	0.009	-0.049	0.667	0.037	0.746
SCS trials	0.251	0.027	-0.006	0.962	-0.031	0.791
SCS implantations	0.328	0.003	0.031	0.789	-0.089	0.439
PNS implantations	0.012	0.919	0.197	0.085	0.088	0.444
Vertebral augmentations	0.296	0.009	0.123	0.283	-0.110	0.337
Vertebral body RFA	0.010	0.931	0.203	0.075	-0.012	0.917

- Survey respondents represented 30% of the fellows in 44% of Pain Medicine programs who were trained during the 2021-2022 academic year.
- Categorical analysis suggests that performing > 10 of any given procedure yields comfortability.
- There was a significant correlation between fellows who had performed a procedure and comfortability (Table 1).
- Overall comfort level was high for sympathetic neurolysis (65.7%), spinal cord stimulator trials (85.7%) and implantations (66%) but not intrathecal pump trials (36.9%) and implantations (31.3%), peripheral nerve stimulators (41.7%), vertebral augmentations (31.3%) and vertebral RFA (16.7%).
- Most respondents reported no experience performing seven of the eight procedures identified in the study in a cancer population (Table 2).
- A significant correlation between number of lectures for cancer-related pain and comfort was observed for several procedures (Table 3).

Conclusions

- This study identified gaps in current fellow procedural education for cancer-related pain and highlights the need for more robust procedural education for cancer-related pain and identifies procedural experience in non-cancer patients and lectures on cancer-related pain as ways to bridge this gap.
- High departmental procedural volume, personal interest in treating cancer-related pain, and attendance of cancer-related pain lectures were all found to significantly increase comfortability in performing procedures for cancer-related pain post-graduation.
- Experiences with performing the procedures on cadavers were not associated with comfort after graduation, which may indicate that the return on investment of these workshops is minimal.

References

Deandrea S, Montanari M, Moja L, Apolone G. Prevalence of undertreatment in cancer pain. A review of published literature. *Annals of Oncology*. 2008;19(12):1985-1991. doi:10.1093/annonc/mdn419

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