

Anesthesia Provider Sedation (APS) is Superior to Conscious Sedation (CS) for Successful Diagnostic Tissue Acquisition in Endoscopic Ultrasound Fine Needle Aspiration And/Or Biopsy (EUS FNA/B)

LOMA LINDA UNIVERSITY HEALTH

Sneha Shaha DO1, Yinglin Gao DO1, Jiahao Peng MD, MPH1, Kendrick Che DO2, John J, Kim MD2, Wasseem Skef MD2 1. Department of Medicine, Loma Linda University Medical Center, Loma Linda, CA 2. Division of Gastroenterology and Hepatology, Loma Linda University Medical Center, Loma Linda, CA

Background

- · EUS-FNA/B is frequently used for diagnosis of suspicious intestinal, subepithelial, and extraintestinal lesions
- · Our study aimed to evaluate the role of sedation on specimen adequacy and diagnostic yield of malignancy in EUS-FNA/B of solid pancreatic and extra pancreatic lesions.
- · Given frequent use and experience of CS with diagnostic EUS at our institution, we hypothesized that the diagnostic yield of EUS-FNA/B would be equivalent for both sedation groups.

Materials and Methods

- · Retrospective, single-center, cohort study was conducted including patients aged >18 years old who received EUS-FNA/B at our institution from 9/2018 -5/2021 for further evaluation of suspicious lesions.
- Primary endpoint: Diagnostic vield of neoplastic lesions.
- · Secondary endpoint: Adverse events (AEs)
- Technical success was defined percentage of lesions sampled in which the obtained material is representative of the target site and adequate for cytologic evaluation
- · Diagnostic yield successful cytologic diagnosis was defined by positive or suspicious results. Unsuccessful cytological results were defined by unsatisfactory, indeterminate, or false negative results.
- AEs categorized into 4 groups mild, moderate, severe and fatal

Results and Data

_		_	
Patier N=354	nts underwent E 9	ista	
Conscious Sedation N = 136		Anesthesia Prov N = 233	ider Endetion
Technical Success Unsetsfactory 124/156 (91.2%) 12/156 (9.4%)		echnical Success 19/233 (94.0%)	Unsatisfactory 14/283 (VII)
Pass N-3	ents underwert 02	Excluded Sen N= 67 EUS-TA	ign leskora
ACP3: N=198		C8: N=106	1
Successful ACPS FNA/S bx Failed ACPS FNA/S bx N=145 (74.5%) N=0 (25.5%)	Succes N=66(5	nu CS PNAIS bx 2.3%)	Failed CS FRA/8 bx N=40 (27.7%)
Figure 1. Flow diagram of inclusion and	exclusion	criteria	
Univariate logistic regression (Crude effect)	Unit	OR	95% Confidence Lin

Univariate logistic regression (Crude effect)	Unit	OR	95% Confidence Limits		p-Value	
Type of sedation (CS vs Anesthesia)	1	0.565	0.34	0.938	0.0274	
Adjusted Effect	Unit	OR	95% Confidence Limits	Column1	p-Value	
Type of sedation CS vs Anesthesia	1	0.558	0.315	0.987	0.0451	
Location Abdominal (non-pancreas) vs (pancreas ampulla/uncinate/head)	1	0.859	0.36	2.049	0.7311	
Location neck/body/tail pancreas vs (pancreas ampulla/uncinate/head)	1	0.83	0.414	1.663	0.5987	
Location Others vs (pancreas ampulla/uncinate/head)	1	0.46	0.2	1.063	0.0691	
Size of needle used 19g vs 25g	1	0.583	0.092	3.707	0.5677	
Size of needle used 22g vs 25g	1	1.215	0.662	2.231	0.5301	
N	-	4.470	4 404	4 000	0.0004	

Table 1. Primary endpoint: EUS-TA diagnostic yield logistic regression analysis

		Type of Sedation			
	CS	Anesthesia			
Severity		GA	MAC		
Mild	3	17	2		
Moderate	2	6	0		
Severe	0	3	0	_	
Fatal	0	0	0	_	
Total	5	26	2		

The incidence of adverse events was found to be significantly lower in the CS group as compared with the anesthesia group (odds ratio [95% CI]: 0.281 [0.095 - 0.833], P = 0.022).

Intubation was found to be the main predictor for adverse events (adjusted odds ratio [95% CI]: 0.471 [0.081 2.7211. P = 0.3998

Table 2. Adverse Events

		Type of seds	ation		
	Anesthesia		Conscious Sedation		
	N	%	N	%	P value
der	IN.	79	- "	- 2	0.07
Male	110	47.21	51	37.5	
Female	123	52.79	85	62.5	
A Class					<0.001
1	5	2.15	8	5.88	
2	45	19.31	63	46.32	
3	169	72.53	65	47.79	
4	14	6.01			
bation					< 0.001
N	35	15.02	136	100	ļ
Y	198	84.98			
cation					0.001
Thoracic	1	0.43	1	0.74	
Peritoneal (non-pancreas)	26	11.16	22	16.18	
Pelvic	3	1.29	2	1.47	
cancreas ampulla/uncinate/head	130	55.79	42	30.88	
Pancreas neck/body/tail	50	21.46	46	33.82	
SEL	22	9.44	22	16.18	
rtologic Result					0.007
		1			
1 (Unsatisfactory)	14	6.01	22	16.18	
i (Oilsatisiactory)	14	0.01		10.16	
2 (Negative)	43	18.45	33	24.26	l
3 (Atypical/Indeterminate)	30	12.88	15	11.03	l
4 (Suspicious for malignancy)	10	4.29	3	2.21	
5 (Positive for malignancy)	136	58.37	63	46.32	
esence of ROSE					0.48
N N	174	74.68	106	77.94	0.46
Y	59	25.32	30	22.06	1
IS type					0.501
Upper	230	98.71	133	97.79	
LEUS	3	1.29	3	2.21	
te of needle used					0.374
19g	9	3.86	5	3.68	
22g	63	27.04	47	34.56	
25g	158	67.81	81	59.56	
edle type					< 0.001
FNA	140	60.09	115	84.56	
FNB	93	39.91	21	15.44	
mediate procedural complications					0.007
N	205	87.98	131	96.32	
Y	28	12.02	5	3.68	

Table 3. Baseline Variables

- (1) unsatisfactory specimen
- (2) negative for malignancy
- (3) atypical/indeterminate
- (4) suspicious for malignancy
- (5) positive for malignancy.

Figure 2. Cytology Categories

	Severity grade				
Consequence		Moderate	Severe	Fate	
Procedure aborted (or not started) because of an adverse event	×				
Postprocedure medical consultation	×				
Unplanned anesthesia/ventilation support, ie endotracheal intubation during conscious sedation		×			
Temporary ventilation support by bagging or nasal airway during conscious sedation, and endotracheal intubation during a modified anesthesia care procedure are not adverse events					
Unplanned hospital admission or prolongation of hospital stay for ≤3 nights	×				
Unplanned admission or prolongation for 4-10 nights		×			
Unplanned admission or prolongation for > 10 nights			×		
ICU admission for 1 night		×			
ICU admission > 1 night			×		
Transfusion		×			
Repeat endoscopy for an adverse event		×			
Interventional radiology for an adverse event		×			
Interventional treatment for integument injuries		×			
Surgery for an adverse event			×		
Permanent disability (specify)			×		
Death				×	

Table 4. Adverse events categories

Materials and Methods

- · Baseline statistical comparison was done using the Chi-square test and Wilcoxon two sample tests.
- · Univariate and multivariate logistic regression analysis was conducted to further evaluate primary and secondary outcomes.
- · All statistical analyses were performed utilizing SAS Software (version 9.4; SAS Institute Inc. Cary, NC, USA).

Conclusion

- APS provides superior specimen adequacy and diagnostic yield of malignant lesions for EUS FNA/B.
- · AEs occur more frequently in APS albeit most AEs are mild and associated with general anesthesia.