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ORIGINAL ARTICLE

To assess the association between the sedation method employed and the diagnostic yield of Endoscopic Ultrasound-guided Fine Needle Aspiration of Pancreatic Masses

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ABSTRACT:
Background: Endoscopic ultrasound (EUS) is used to detect and delineate the extent of lesions in the gastrointestinal tract, periluminal lymph nodes, pancreas and hepatobiliary tree, left kidney, spleen, and adrenal glands. EUS-guided fine-needle aspiration (FNA) has added a new dimension to the capabilities of EUS because it permits characterization of the lesion, thereby enabling triage of patients for more efficient and effective management. Hence; the present study was undertaken for assessing the association between the sedation method employed and the diagnostic yield of Endoscopic Ultrasound-guided Fine Needle Aspiration (EUG-FNA) of Pancreatic Masses. **Materials & methods:** A total 100 patients were enrolled and were divided into two study groups depending upon the type of sedation method employed: General anesthesia group and conscious sedation group. Complete demographic and clinical data of all the patients was obtained. All the suspected patients underwent Endoscopic Ultrasound-guided Fine Needle Aspiration according to their respective groups. **Results:** A cytological diagnosis was obtained in 86 percent of the patients of the general anesthesia group and 72 percent of the patients of the conscious sedation group. Association between the sedation method employed and diagnostic yield was significant in relation to tumour type and sensitivity analysis. **Conclusion:** Anesthesiologist-delivered GA was related with a suggestively enhanced diagnostic yield of EUS-FNA.
Key words: Endoscopic Ultrasound-guided Fine Needle Aspiration, Pancreatic

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INTRODUCTION

Endoscopic ultrasound (EUS) is used to detect and delineate the extent of lesions in the gastrointestinal tract, periluminal lymph nodes, pancreas and hepatobiliary tree, left kidney, spleen, and adrenal glands. EUS-guided fine-needle aspiration (FNA) has added a new dimension to the capabilities of EUS because it permits characterization of the lesion, thereby enabling triage of patients for more efficient and effective management.[1-3]

EUS-FNA has started in 1991 for pancreatic cancer and at present is performed on a routine basis at many endoscopic centers, being evident that this procedure has a major impact on the therapeutic management of patients, by obtaining a definite tissue diagnosis from lesions outlined by EUS. The ability to obtain cytologic material under direct visualization adds a new dimension to the diagnostic usefulness of this technique because it offers an opportunity for prompt and accurate diagnosis. EUS-FNA is used to acquire tissue from mucosal/ submucosal tumors, as well as peri-intestinal structures including lymph nodes, pancreas, adrenal gland, gallbladder, bile duct, liver, kidney, lung, etc.[4-6] Hence; the present study was undertaken for assessing the association between the sedation method employed and the diagnostic yield of Endoscopic Ultrasound-guided Fine Needle Aspiration (EUG-FNA) of Pancreatic Masses.

MATERIALS & METHODS

The present study was undertaken for assessing the association between the sedation method employed and the diagnostic yield of Endoscopic Ultrasound-guided Fine Needle Aspiration of Pancreatic Masses. A total 100 patients were enrolled and were divided into two study groups depending upon the type of sedation method employed: General anesthesia group and conscious sedation group. Ethical approval was obtained from institutional ethical committee and written consent was obtained from all the patients after explaining in detail the entire research protocol. Complete demographic and clinical data of all the patients was obtained. All the suspected patients underwent Endoscopic Ultrasound-guided Fine Needle Aspiration according to their respective groups. All the results were recorded in Microsoft excel sheet and were analysed by SPSS software. Univariate and multivariate analysis were used for evaluation of level of significance.

RESULTS

In the present study, a cytological diagnosis was obtained in 86 percent of the patients of the general anesthesia group and 72 percent of the patients of the conscious sedation group. Mean age of the patients of the general anesthesia group and conscious sedation group was 63.2 years and 62.1 years respectively. Among both the study groups, majority of the tumours were seen in the head of the pancreas. Adenocarcinoma was the prime diagnosis in 74 percent of the patients of the general anaesthesia group and 80 percent of the patients of the conscious sedation group. Association between the sedation method employed and diagnostic yield was significant in relation to tumour type and sensitivity analysis.

Table 1: Demographic and clinical data

Variable		General anesthesia group (n=50)	Conscious sedation group (n=50)	p- value
Mean age (years)		63.2	62.1	0.11
Males (%)		46	44	0.85
Tumour location	Head of pancreas (%)	88	90	0.74
	Neck of pancreas (%)	6	2	
	Unicate of pancreas (%)	2	2	
	Body of pancreas (%)	2	4	
	Tail of pancreas (%)	2	2	
Type of tumour	Adenocarcinoma (%)	74	80	0.32
	Normal pancreas (%)	20	14	
	Neuroendocrine (%)	4	2	
	Metastatic (%)	2	4	

Table 2: Association between the sedation method employed and the diagnostic yield of Endoscopic Ultrasound-guided Fine Needle Aspiration of Pancreatic Masses

Association		Odd Ratio (95% CI)	p- value
Sedation method (General anesthesia VS Conscious sedation): Crude analysis		1.93	0.02 (Significant)
Primary analysis: Sedation method (General anesthesia VS Conscious sedation)	Age	1.05	0.85
	Tumour location	1.65	0.16
	Tumour type	2.12	0.00 (Significant)
	Sensitivity analysis	3.02	0.01 (Significant)

DISCUSSION

EUS-FNA is a sensitive modality that enables specific and accurate diagnosis of deep-seated lesions. Samples can be obtained effectively from small lesions (< 25 mm), irrespective of the organ site. On-site assessment permits a highly accurate preliminary diagnosis of malignancy for samples obtained by EUS-FNA and provides an opportunity to increase the diagnostic yield of samples.[7- 10] Hence; the present study was undertaken for assessing the association between the sedation method employed and the diagnostic yield of Endoscopic Ultrasound-guided Fine Needle Aspiration of Pancreatic Masses.

In the present study, a cytological diagnosis was obtained in 86 percent of the patients of the general anesthesia group and 72 percent of the patients of the conscious sedation group. Mean age of the patients of the general anesthesia group and conscious sedation group was 63.2 years and 62.1 years respectively. Ootaki C et al assessed the association between the sedation method employed and the diagnostic yield of EUS-FNA. They compared the diagnostic yield of EUS-FNA between patients receiving GA provided by an anesthesiologist (GA group) and patients receiving conscious sedation (CS) provided by a qualified registered nurse (CS group). Of 371 patients, a cytological diagnosis was obtained in 73/88 patients (83%) in the GA group and 206/283 patients (73%) in the CS group. Anesthesiologist-delivered GA was associated with increased odds of having a successful diagnosis as compared with CS. However, the incidence of complication during or after the procedure was not different between the groups (P > 0.99). Anesthesiologist-delivered GA was associated with a significantly higher diagnostic yield of EUS-

FNA. GA should be considered a preferred sedation method for EUS-FNA of a solid pancreatic mass.[11]

In the present study, among both the study groups, majority of the tumours were seen in the head of the pancreas. Adenocarcinoma was the prime diagnosis in 74 percent of the patients of the general anaesthesia group and 80 percent of the patients of the conscious sedation group. Martin Kliment et al assessed diagnostic yield, safety and impact of EUS-FNA on management of patients with solid pancreatic mass. Consecutive patients undergoing EUS-FNA of solid pancreatic mass were enrolled. Among 207 enrolled patients, final diagnosis was malignant in 163 (78.6%) and benign in 44 (21.4%). The sensitivity, specificity and accuracy of EUS-FNA in diagnosing pancreatic cancer were 92.6% (95% CI: 87.20-95.96), 88.6% (95% CI: 74.64-95.64) and 91.8% (95% CI: 87.24-94.81), respectively. No major and five (2.4%) minor complications occurred. Of 151 true-positive patients by EUS-FNA, 57 (37.7%) were surgically explored, of whom 28 (49.1%) underwent resection. Ten of 12 patients with false-negative cytology were explored based on detection of mass on EUS, of whom two had a delay due to false-negative cytology without curative treatment. EUS-FNA had positive and negative impacts on subsequent management in 136 (65.7%) and 2 (0.9%) patients, respectively. EUS-FNA provides accurate diagnosis in 92% and has positive therapeutic impact in two-thirds of patients with solid pancreatic mass.[12]

In the present study, association between the sedation method employed and diagnostic yield was significant in relation to tumour type and sensitivity analysis. Pancreatic cystic neoplasms (PCNs) include a spectrum of pathology, covering intraductal papillary mucinous neoplasm (IPMN), mucinous cystic neoplasms (MCN), and serous cystadenomas. Endoscopic ultrasonography with FNA has been shown to be superior to CT and MRI in accurately classifying a cyst as neoplastic. Moreover, the addition of EUS-FNA to abdominal imaging significantly increases the overall accuracy for diagnosis of neoplastic pancreatic cysts. This may be related to the fact that EUS has low invasiveness and high resolution as well as anatomical proximity to the pancreas and upper gastrointestinal tract in comparison to other modalities such as endoscopic retrograde cholangiopancreatography (ERCP). A recent large multicenter study evaluated the factors influencing the yield of EUS-FNA of pancreatic cystic lesions. It found that on univariate analysis, factors associated with higher cytologic yield included vascular involvement on EUS, presence of solid cystic component, and increased number of needle passes during EUS-FNA. In addition, for pancreatic cysts with a solid component, the diagnostic yield of EUS-FNA increased significantly from 44% with one pass to 78% with more than one pass.[12- 15]

CONCLUSION

From the above results, the authors conclude that Anesthesiologist-delivered GA was related with a suggestively enhanced diagnostic yield of EUS-FNA.

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