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Advanced MRI Characteristics for diagnosis of Early chronic Pancreatitis- A Pilot Study

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INTRODUCTION:

Chronic pancreatitis (CP)-Progressive inflammatory condition with structural changes in pancreas

Presents with chronic abdominal pain and pancreatic endocrine and exocrine insufficiency

Challenging to diagnose Early CP(ECP)-clinical manifestations subtle & overlap with other GI disorders

AIM

1.To diagnose ECP from amongst patients presenting with vague abdominal symptoms and no obvious florid manifestation of endocrine or exocrine insufficiency

2.Estimation and inter-group comparison of means of quantitative imaging variables viz., T1 relaxation times, T2* relaxation times, ADC and fat fraction in cases of no pancreatitis, ECP and ACP

METHOD:

Cross-sectional study conducted over 3 years at AIIMS Mangalagiri and Kalyani.

Patients with abdominal symptoms isuggestive of CP were categorized into ECP and ACP using M-ANNHEIM system(MRI imaging including advanced parameters T1&T2* relaxation times,ADC& fat fraction)

Inclusion Criteria: 1.Severity Index M-ANNHEIM A/B (indicating ECP) and M-ANNHEIM C/D (indicating ACP) based on Clinical Criteria for diagnosis of ECP and ACP 2. Age >18yrs

3. Patients giving informed consent

Exclusion Criteria:.Patients with other disorders whose features are similar to ECP, like duodenal ulcer disease, gall stones .2.pregnancy 3.C/I to MRI.

Statistical Analysis-3 way ANOVA

It is challenging to identify cases with early chronic pancreatitis based on clinical and usual radiological tests(USG abdomen/CT scans).Advanced MRI features make early diagnosis of ECP possible and avoid unnecessary invasive investigations for vague symptoms that these group of patients very often present with

RESULTS

53 patients(13 controls, 20ECP,20 ACP

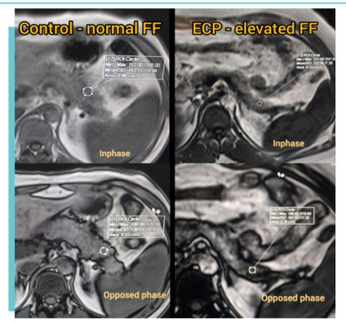
Males-49 and rest females

No significant difference noted between ECP and controls based on clinical features

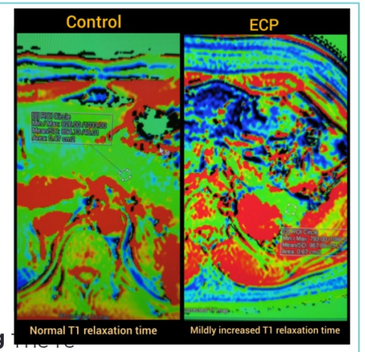
On advanced MRI study-T1 relaxation time and Fat fraction were significantly different between controls and ECP

Table below shows mean and standard errors of three groups

CHARACTERISTICS	CONTROL	ECP	ACP	P VALUE
T1 relaxation time(msec)	855±78.4	985.7 ± 62.2	1192.5 ± 194.4	p < 0.001
FF(%)	4.2 ± 3.3	3.9 ± 2.4	10.7 ± 4.4	p < 0.001



Advanced MRI showing elevated FF in ECP as compared to controls



Prolonged T1 relaxation time in ECP as compared to controls

CONCLUSIONS

1.Advanced MRI parameters can be used to diagnose ECP and differentiate from those who have a normal pancreas

2.Minimize the need for invasive procedures and improve patient management in regions with high prevalence of CP

3.Future larger-scale studies are required to define diagnostic cut-offs for broader clinical application

REFERENCES

1. Masamune A, et.al. Prospective study of early chronic pancreatitis diagnosed based on the Japanese diagnostic criteria. J Gastroenterol. 2019;54(10):928-935
2. Tirkes T, et.al.. T1 mapping for diagnosis of mild chronic pancreatitis. J MagnReson Imaging . 2017 ;45(4):1171–6.

3. Parakh A,et.al. Advanced Imaging Techniques for Chronic Pancreatitis. Abdom Radiol N Y. 2020 ;45(5):1420–38

4. Whitcomb DC et.al. Working Group for the International (IAP – APA – JPS – EPC) Consensus Guidelines for Chronic Pancreatitis. International consensus statements on early chronic Pancreatitis. Recommendations from the working group for the international consensus guidelines for chronic pancreatitis in collaboration with The International Association of Pancreatology, American Pancreatic Association, Japan Pancreas Society, PancreasFest Working Group and European Pancreatic Club. Pancreatology. 2018 Jul;18(5):516-527. doi: 10.1016/j.pan.2018.05.008.

5. Shimosegawa T, Kataoka K, Kamisawa T, Miyakawa H, Ohara H,et.al. The revised Japanese clinical diagnostic criteria for chronic pancreatitis. J Gastroenterol. 2010 Jun;45(6):584-91. doi: 10.1007/s00535-010-0242-4.

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