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Brief Communication

Indian Cut Offs or Chicago Classification v4.0 For Reporting Esophageal manometry Using Water Perfusion System: Does It Really Make a Difference?

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Sir,

High resolution esophageal manometry (HREM) is used to assess esophageal motility. It is reported using Chicago classification (CC). The normative data used for reporting has been predominantly obtained from Caucasian population and may not apply to Indian population. Recent studies from India have reported normative data using water perfusion manometry system[1,2]. It has been noted that metrics like integrated relaxation pressure (IRP) and distal contractile integral (DCI)are lower in Indians (**Table 1**)[1,2]. The most recent iteration of CC, CC v 4.0, has tried to address these concerns by using a database of 469 healthy volunteers (55% women, median age 28 years) across four continents using three HREM systems[3].

The present study was undertaken to determine the change in final manometry diagnosis in patients with suspected esophageal motility disorders using CC v 4.0 and Indian cut offs. This retrospective study included all adult patients (>18 years) referred for HREM study to our centre between 2019 and 2021. We excluded pediatric cases, those with incomplete studies (<10 wet swallows) and those with history of foregut surgery. Before HREM study, the patients were instructed to stop prokinetics and anti-cholinergics for at least 2 weeks. Ten swallows of 5 mL water each were done in supine posture, using a 16-channel water perfusion system (GS Hebbard, Melbourne, Australia). The recorded tracings of patients between 2019 and 2021 were reanalysed by a single observer. Reporting was done using Indian cut offs and CCv4.0 for all cases. Correlation between the two sets of final reports for concordance was done. The study was approved by Ethics committee of our Institute via letter no AHRC/IEC/2020/08. A p value of <0.05 was considered significant.

A total of 122 studies were done for suspected esophageal dysmotility during the study period. Seventeen studies were excluded – age <18 years (4 cases), incomplete study (1 case) and history of foregut surgery (12 cases). Thus, the study cohort included 105 cases.The median age was 43 years (range 18-84) and 70 (66.7%) were males. There was 100% concordance for final diagnosis using both reporting systems for patients with normal motility and disorders of esophagogastric junction (**Table 2**). For disorders of peristalsis, it was noted that in ten cases (30.3%) labelled as ineffective esophageal motility by CC4.0, the final diagnosis was revised to normal motility as per Indian cut-offs. Overall, there was excellent correlation between the two reporting systems (p<0.0001).

The CC 4.0 has made a critical contribution by codifying HREM metrics and better defining the motility disorders. Compared to previous iterations, there has been an expansion of normal database from 75 to 469 healthy volunteers. Moreover, a variety of commercially available manometry systems have been used. This has

Table 1: Differences between Indian cut offs and Chicago classification v 4.0

Parameters	Indian cut offs	CC v 4.0
Integrated relaxation pressure (mm Hg)	<13	<15
Distal latency (sec)	>4.5	>4.5
Distal contractile integral (mm Hg-s-cm)	350 - 4500	450 - 8000
Normal peristalstic break (cms)	<5 cms	<5 cms
Ineffective esophageal motility	DCI 70-350	>70% ineffective swallows (DCI 100-450) or >/=50% of failed swallows (DCI<100)
Absent contractility	DCI <70, Breaks >5 cms	100% failed contractions (DCI<100), Breaks >5 cms

CC - Chicago classification, DCI - Distal contractile integral.

Table 2: Concordance of final diagnosis according to the two reporting systems.

Manometry diagnosis	Indian cut offs					
	CCv 4.0 (n=105)	Normal study	Achalasia cardia	EGJ outflow obstruction	Ineffective esophageal motility	Absent contractility
Normal study	36	36	-	-	-	-
Disorders of EGJ outflow Achalasia cardia EGJ outflow tract obstruction	30 01	- -	30 -	- 01	- -	- -
Disorders of peristalsis Ineffective esophageal motility Absent contractility	33 05	10 -	- -	- -	23 -	- 05
R value 0.9242	p value <0.00001					

EGJ - Esophagogastric junction

led to refinement in criteria and better reporting. The Indian cut offs have been reported for water perfusion manometry system[1]. The present study was done using the same system and technique. It is well documented that there is poor correlation between symptoms and manometry findings in Indian patients[4]. Ineffective esophageal motility is commonly noted in patients with reflux disease and it has been noted that such patients do not show worsening or requirement of intervention on follow up[5]. Thus, labelling such patients as ineffective motility unnecessarily increases their anxiety and does not affect treatment. Using Indian cut-offs helps to minimise this error and is reassuring for patients and doctors. The study is limited by retrospective analysis by a single non blinded observer.

To conclude, using CC v4.0 for reporting is adequate for Indian patients with normal motility and disorders of esophagogastric junction. One third of patients with ineffective motility as per CC v4.0 are classified as normal using Indian cut offs. Hence, for assessment of peristaltic disorders, Indian cut offs may be useful for proper diagnosis.

References

1. Srinivas M, Jain M, Bawane P, Jayanthi V. Chicago Classification normative metrics in a healthy Indian cohort

for a 16-channel water perfused high resolution esophageal manometry system. NeurogastroenterolMotil.2018;e13386

2. Srinivas M, Jain M, Bawane P, Jayanthi V. Normative Values for Esophageal Motility Assessed in the Physiological Seated Position for 16-Channel Water Perfused High-resolution Esophageal Manometry System and Postural Variations in Healthy Volunteers. J Neurogastroenterol Motil.2020; 26(1):61-66
3. Yadlapati R, Kahrilas PJ, Fox MR, et al. Esophageal motility disorders on high-resolution manometry: Chicago classification version 4.0. NeurogastroenterolMotil.2021;33(1):33e14058
4. Jain M, Srinivas M, Bawane P, Venkataraman J. Does Chicago Classification address Symptom Correlation with High-resolution Esophageal Manometry? Euroasian J Hepato-Gastroenterol 2017;7(2):122-125
5. Jain M. Normal study or minor motility disorders detected in high resolution esophageal manometry- Are they relevant? Gastroenterology Rev.2020;15(1):76-79.