



# Association of Chronic Opioid Use With Dyssynergic Defecation: Dose and Exposure Effects



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## BACKGROUND

- While opioids can be effective management for analgesia, GI side effects can limit tolerability
- Chronic opioid use (OU) is associated with opioid-induced constipation (OIC) through slowing of GI transit
- Studies have noted possible associations between OU and dyssynergic defecation (DD)

## AIMS

- To identify chronic OU amongst patients who underwent anorectal manometry (ARM) testing to determine dose or exposure related effects on anorectal function

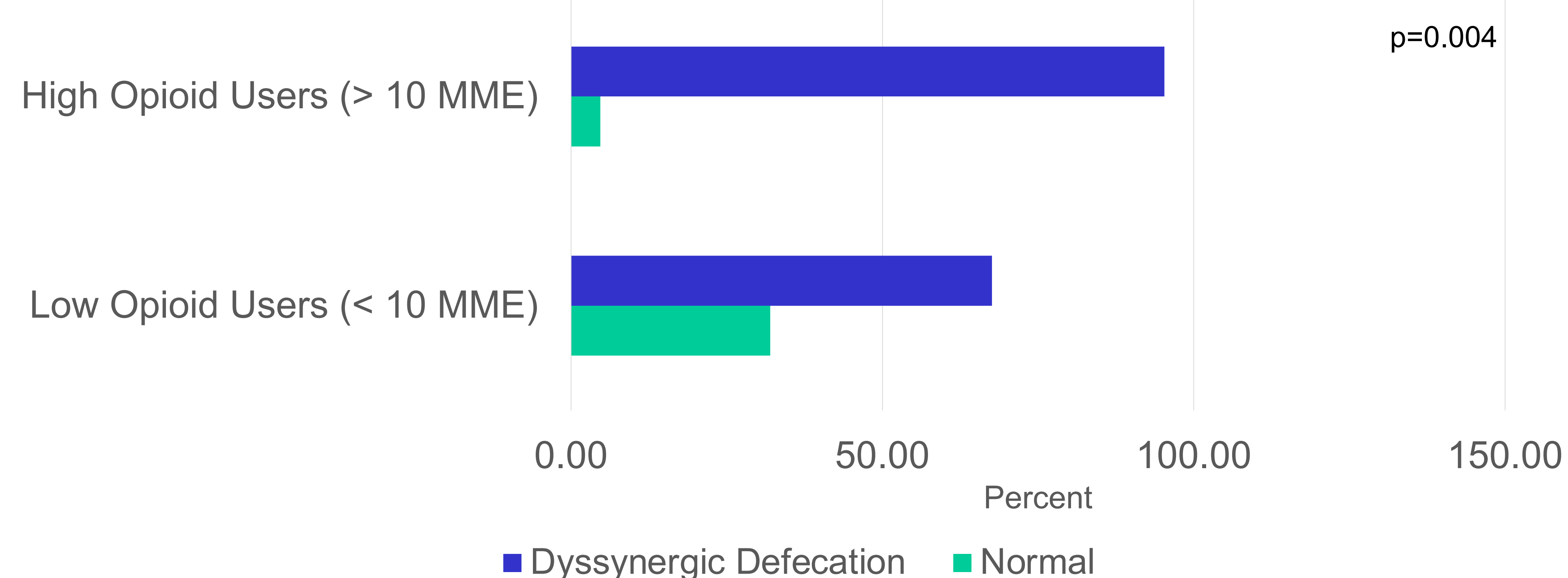
## METHODS

- We conducted a retrospective study of patients who had ARM from January 2015 to October 2021 at a single, large, urban motility center
- OU was determined by pre-procedure questionnaire and medical record review
- OU was considered at least one month of use at time of ARM and was standardized based on morphine milliequivalents (MMEs)
- OU among patients was stratified into Low-dose (<10 MME) and High-dose (>10 MME)
- SPSS v. 28 to conduct t-test and Chi-square analysis

## RESULTS

Table 1: Distributions and Variables for Non-Opioid Users and Opioid Users in Patients undergoing Anorectal Manometry		Non-Opioid (n=675)	All Opioid (n=98)	p-Value	Low Dose (0-10 MME) Opioid (n= 34)	High Dose (≥ 10 MME) Opioid (n=64)	p-Value
Gender	Male	142 (20%)	24 (24%)	0.43	7 (20.6%)	17 (26.6%)	0.62
	Female	533 (80%)	74 (66%)		27 (79.4%)	47 (73.4%)	
Age (mean) y		48.7 ± 16.0	56.0 ± 16.9	< 0.001	55.9 ± 17.0	56.0 ± 17.0	0.98
ARM Indication	Constipation	511 (75.6%)	78 (79.6%)	0.04	24 (70.6%)	54 (84.4%)	0.14
	Fecal Incontinence	120 (17.8%)	13 (13.3%)		8 (23.6%)	5 (7.8%)	
	Constipation and Fecal incontinence	23 (3.5%)	5 (5.1%)		1 (2.9%)	4 (6.2%)	
	Fecal Urgency	8 (1.2%)	0		-	-	
	Incomplete Defecation	2 (0.3%)	0		-	-	
	Diarrhea	10 (1.5%)	0		-	-	
	Constipation and Diarrhea	1 (0.1%)	2 (2%)		1 (2.9%)	1 (1.6%)	
ARM Result	Normal	281 (41.6%)	14 (14.3%)	< 0.001	11 (32.4%)	3 (4.7%)	0.005
	Type I DD	174 (25.8%)	43 (34.9%)		10 (29.4%)	33 (51.6%)	
	Type II DD	33 (4.9%)	9 (9.2%)		2 (5.9%)	7 (10.9%)	
	Type III DD	116 (17.2%)	18 (18.4%)		6 (17.6%)	12 (18.8%)	
	Type IV DD	71 (10.5%)	14 (14.3%)		5 (14.7%)	9 (14.1%)	
Defecation Index	Abnormal (<1.4)	502 (74.3%)	80 (81.6%)	0.13	21 (61.8%)	59 (92.2%)	0.006
	Normal (>1.4)	174 (25.7%)	18 (18.4%)		13 (38.2%)	5 (7.8%)	
Balloon Expulsion Time	Abnormal (>60sec)	238 (35.3%)	64 (65.3%)	< 0.001	21 (61.8%)	43 (67.2%)	0.65
	Normal (<60 sec)	436 (64.7%)	34 (34.7%)		13 (38.2%)	21 (32.8%)	
Sensory Threshold	Low	155 (22.9%)	26 (26.5%)	0.50	11 (32.4%)	15 (23.4%)	0.33
	Normal	339 (50.1%)	43 (43.9%)		16 (47.1%)	27 (42.2%)	
	High	182 (26.9%)	29 (29.6%)		7 (20.6%)	22 (34.4%)	
Mean sphincter pressure (resting) mmHg		64.60 ± 23.6	63.50 ± 25.3	0.66	58.6 ± 25.3	66.1 ± 25.2	0.16
Max sphincter pressure (squeeze) mmHg		157.5 ± 68.0	147.0 ± 62.9	0.15	138.6 ± 64.9	151.5 ± 61.8	0.33

Figure 1: Presence of Dyssynergic Defecation in Low Dose Opioid Use and High Dose Opioid Use Groups



## RESULTS

- Of 773 patients undergoing ARM, 12.7% had chronic OU. OU was associated with having DD; Type 1 DD being most common [Table 1]
- Chronic OU patients were older than patients without OU. ARM in chronic OU patients was performed more often for constipation, constipation and fecal incontinence, and constipation and diarrhea
- Chronic OU patients were more likely to have abnormal balloon expulsion time (BET) defined as > 60 seconds
- Within OU, patients were divided into low and high dose of opiates for likelihood of DD findings on ARM [Figure 1]
- The lowest group dosing that reached significance defined low OU as 0-10 MME and high OU as ≥10 MME (p=0.005)
- Of the 34 low dose patients, 67.6% had DD; of the 64 high dose patients, 95.3% had DD (p=0.004). High dose OU was associated with fewer normal ARM tests and more Type I-III DD (p=0.005)
- Of the chronic OU, high dose patients were more likely to have abnormal defecation index (DI) defined as < 1.4 compared to low dose patients (p=0.006)

## CONCLUSIONS

- Our data suggests a correlation between OU and ARM indications as well as OU and DD
- 10 MME was the opioid dose threshold above which there is a greater association with anorectal dysfunction
- OU patients who suffered from constipation, were older, and had greater abnormal BET than those without OU, suggesting exposure-dependent association with OU
- DI was abnormal at high dose OU compared to low dose OU, suggesting dose-dependent association with OU
- Thus, OIC can be associated with DD in addition to the known delayed colonic transit