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BACKGROUND

- Cervicalgia, or chronic neck pain, remains an understudied and undertreated comorbid condition in patients with headache disorders that benefits from both pharmacologic and non-pharmacologic treatment profiles.

- Cervicogenic headaches present a significant global healthcare burden, with estimates projecting up to 4.1% of the global population and 20% of headache complaints are attributed to cervicalgia (Fernandez et al. 2020).

- What is the global demographic, treatment, and migraine preventive profile of cervicalgia in patients with either concurrent migraine (CM) or tension-type (CT) headaches?

METHODS

- Using the TriNetX database, cohorts of cervicalgia patients with migraine (CM, ICD10 M54.2. with G43) and cervicalgia patients with tension-type headaches (CT, ICD10 M54.2 with G44.2) were evaluated. Information was obtained regarding patient demographics, medical comorbidities, medication use, therapy services and preventive headache therapy: Topiramate, tricyclic antidepressants (TCAs) and beta-blockers. Categorical data are presented as counts (percentages of each cohort). Continuous data are presented as mean ± standard deviation (SD).

- Balanced, propensity score-matched cohorts of CM and CT with standardized characteristics (age, gender & race) were created. Measures of association analyses were calculated by comparing the fraction of patients with either preventive headache therapy or procedural treatment by the total patients per cohort **(Fig 1)**.

- All statistical analyses were calculated by the TriNetX platform.

RESULTS

Table 1. Demographic Profile for Patients with CM, CT

	CM		CT		p
Cohort #	576,378		196,964		
	#	%	#	%	
Demographics					
Age (mean±SD)	43.6±16.4		47.3±17.7		***
Total #, Age ≥18	587,047		201,891		
Female	427,708	78.5	135,427	73.7	***
Male	148,670	22.5	61.537	26.3	***
Female:Male	3.5		2.8		
White	368,222	67.6	113,107	61.5	***
Black/African American	66,898	12.3	29,024	15.8	***
Hispanic	44,243	9.12	20,976	11.4	***

Table 2. Comorbidity and Treatment Profile for Patients with CM, CT

	CM		CT		p-value
Cohort #	576,378		196,964		
	#	%	#	%	
Comorbidities					
Low back pain	132,768	23.9	74,041	38.9	***
Other anxiety disorders	139,660	24.9	76,254	40.0	***
Depressive episode	122,077	21.8	64,577	33.9	***
Overweight and obesity	93,882	16.8	53,439	28.0	***
Radiculopathy, cervical region	39,136	6.98	19,047	9.99	***
Major depressive disorder, recurrent	34,003	6.07	21,088	11.06	***
Spinal stenosis, cervical region	23,618	4.21	10,338	5.42	***
Fracture of cervical vertebra	6,755	1.21	3,221	1.69	***
Cervical Spondylosis with myelopathy	5,636	1.01	2,471	1.30	***
Dystonia, unspecified	958	0.17	478	0.25	***
Procedures					
Physical Medicine and Rehabilitation Therapeutic (PM&R)	76,302	13.6	47,137	24.7	***
Physical Therapy (PT)	40,089	7.15	25,869	13.6	***
Trigger Point Injection	11,807	2.11	6,973	3.66	***
Chiropractic Manipulative Treatment	5,914	1.06	5,692	2.99	***
Osteopathic Manipulative Treatment	4,084	0.73	4,220	2.21	***
Injection, onabotulinumtoxina	1,996	0.36	2,234	1.17	***
Acupuncture	1,781	0.32	1,457	0.76	***
Acute Treatments					
Opioid analgesics	273,429	48.8	124,742	65.5	
Acetaminophen	254,875	45.5	120,229	63.1	***
Non-steroidal anti-inflammatory analgesics	156,740	28.0	85,150	44.7	***
Cyclobenzaprine	108,498	19.4	64,326	33.8	***
Prednisone	101,193	18.1	57,534	30.2	***
Gabapentin	91,426	16.3	47,168	24.8	***
Antimigraine agents	70,454	12.6	36,450	19.1	***
Sumatriptan	44,426	7.93	25,430	13.3	***
Diazepam	55,098	9.83	28,184	14.8	***
Tizanidine	32,634	5.82	19,176	10.1	***
Pregabalin	26,113	4.66	12,590	6.61	***
Baclofen	23,190	4.14	12,685	6.66	***
Doxepin	4,980	0.89	3,069	1.61	***
Preventive Treatments					
Amitriptyline	41,332	7.37	26,640	14.0	***
Duloxetine	38,381	6.85	18,652	9.79	***
Topiramate	41,332	7.37	26,640	14.0	***
Venlafaxine	25,305	4.51	14,378	7.54	***
Propranolol	19,255	3.44	12,469	6.54	***

Fig 1a: Outcomes Risk for Migraine Preventive (# Outcomes / Total Cohort)
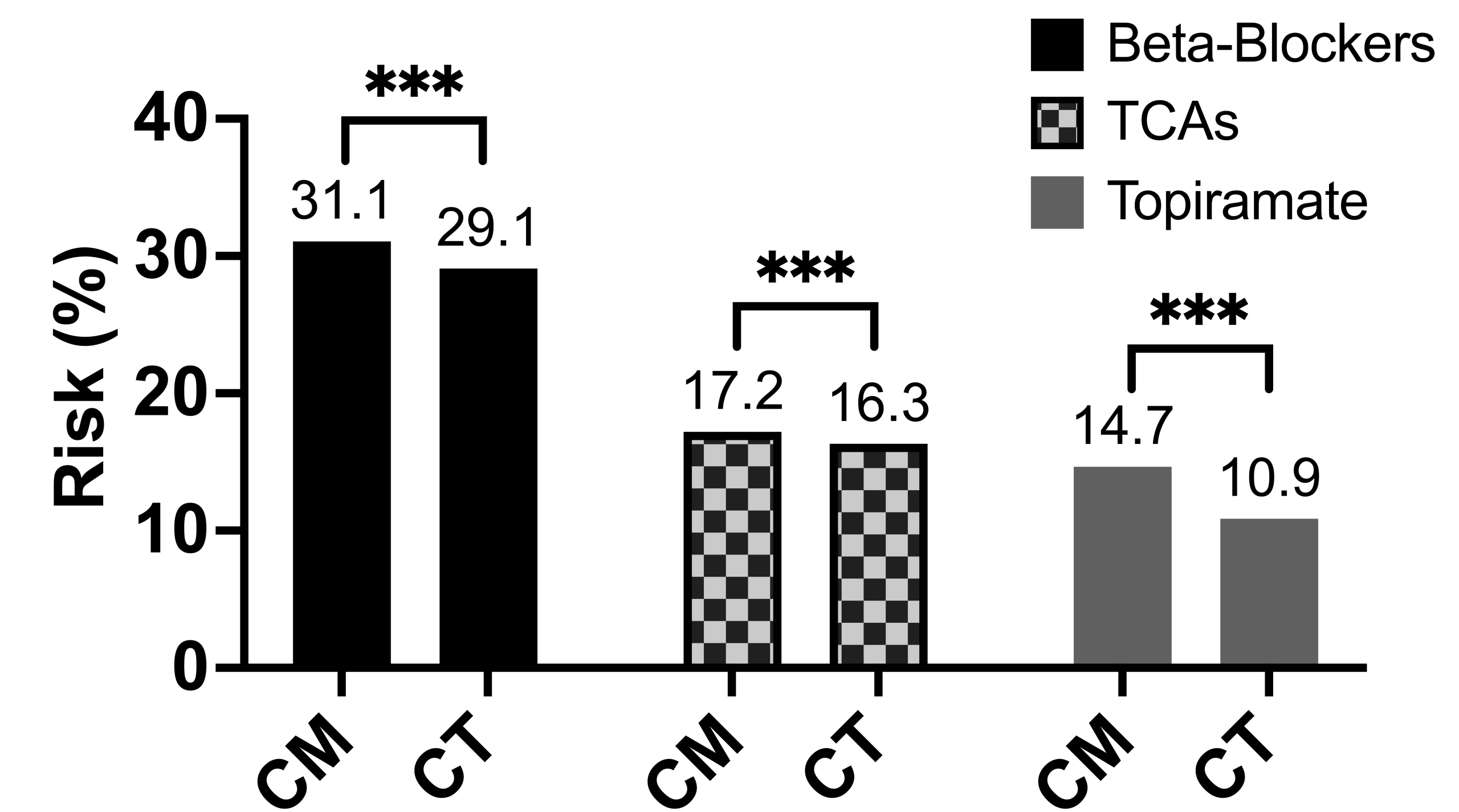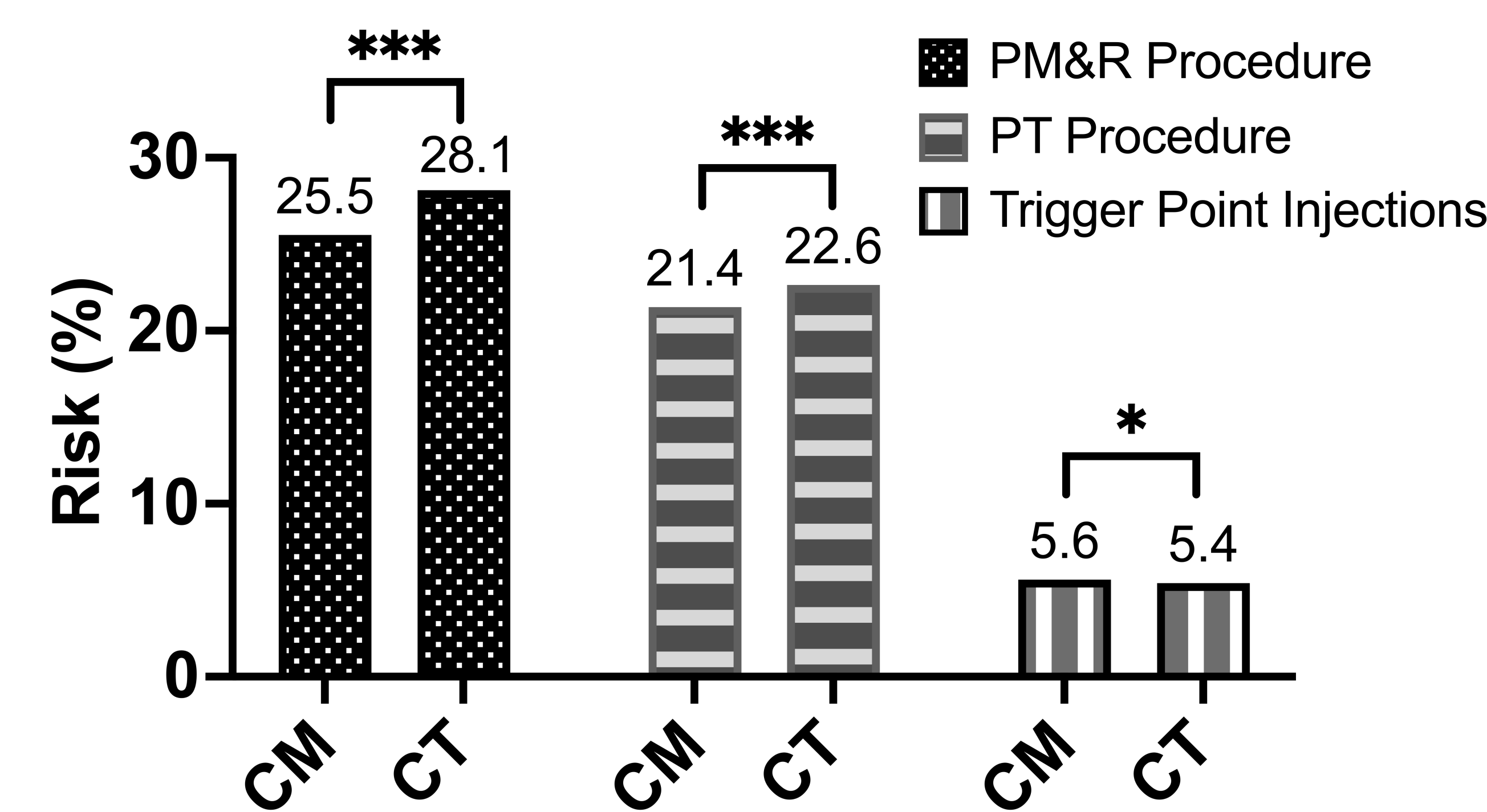

Fig 1b: Outcomes Risk for Procedural Treatments (# Outcomes / Total Cohort)

DISCUSSION / CONCLUSION

- CT patients have a significantly higher proportion of black/African American race, musculoskeletal diagnoses (low back pain, cervical radiculopathy, cervical spinal stenosis), psychiatric comorbidities (mood disorder, anxiety), physical manipulations and injections (PM&R, Trigger Point Injections, Chiropractic Procedures), and use of acute migraine treatments (Opioids, NSAIDs, steroids) compared to CM patients **(Table 2)**.

- CM patients have a significantly higher proportion of preventive migraine treatments following diagnosis compared to CT patients. Most common treatments included Topiramate, TCA's and Beta-Blockers **(Fig 1)**

- Future investigation into barriers and trends of care for cervicalgia in tension-type headache patients compared to migraine patients should be evaluated.

*Tables & Figures: * p<0.05; ** p<0.001; *** p<0.0001*

*This study was sponsored by patient philanthropy and Miles for Migraine

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