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# Investigating the Association between Mast Cell Activation Syndrome and Irritable Bowel Syndrome

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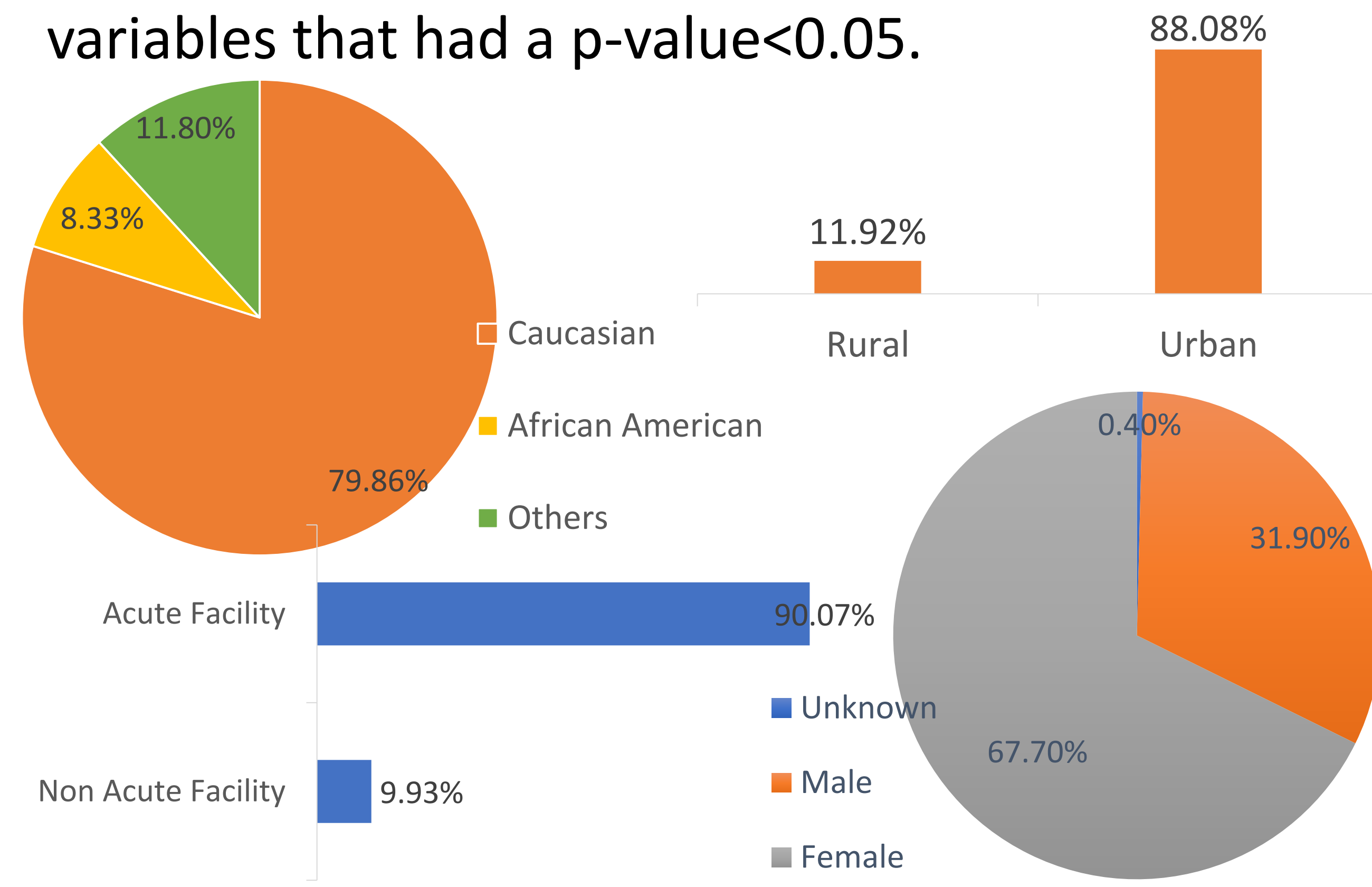
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## Introduction

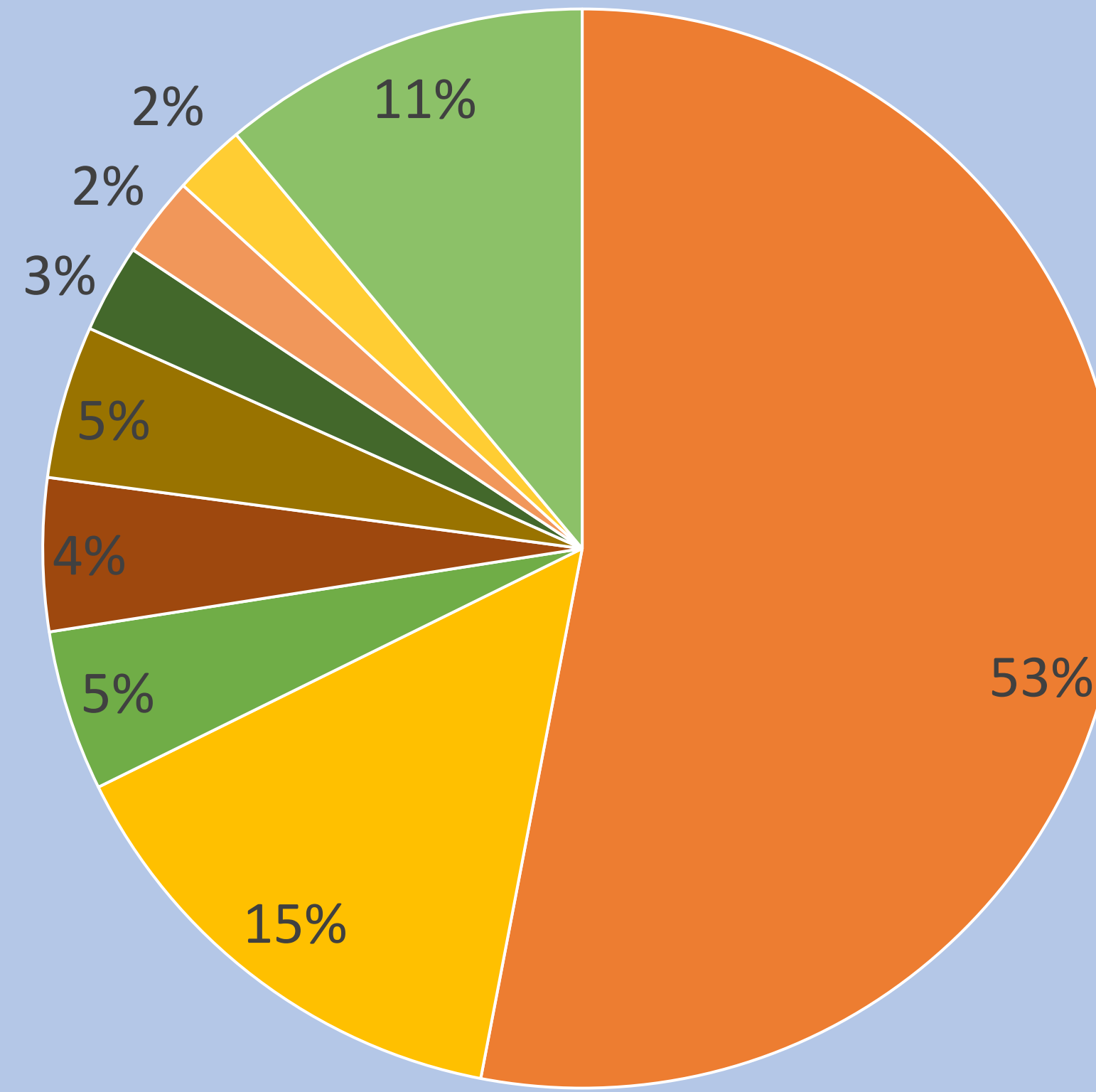
- Mast Cell Activation Syndrome (MCAS) involves the inappropriate release of chemical mediators resulting in varied episodic symptoms.
- Irritable Bowel Syndrome (IBS) is a common functional abdominal disorder where mucosal immune alterations play a key role.
- Since mast cells function as gatekeepers for the intestinal interface, we examined what proportion of patients diagnosed with MCAS also had IBS along with comorbid risk factors.

## Methods

- All patients in our study were 18 years of age or older. We used Cerner HealthFacts a national longitudinal database representing 69 million patients to gather patients with MCAS and IBS.
- We examined potential comorbid risk factors for MCAS using multivariable regression built using all variables that had a p-value < 0.05.



## AiD Burden in Patients with MCAS



- Autoimmune Thyroid Disease
- Rheumatoid Arthritis
- Celiac Disease
- Ulcerative Colitis
- AiD\*
- AiD (Not Specified)
- Diabetes Mellitus Type 1
- SLE
- Alopecia
- \*Pernicious Anemia, endometriosis, Scleroderma, Vitiligo, Thrombocytopenic Purpura, Spondylitis, Myasthenia Gravis, Antiphospholipid Syndrome, Biliary Cirrhosis, Ankylosing Spondylitis

We identified 2,508 patients with MCAS, mean age of 48.7 ± 17.7 years with 67.7% (1,698) being female. 79.9% (2,003) were Caucasian, 8.3% (209) were African American.

- ❖ 11.5% (288/2,508) of patients with MCAS had IBS as well.
- ❖ The most common comorbid autoimmune disorder (AiD) was autoimmune thyroid disease (220).
- ❖ On multivariable regression, the factors associated with a higher risk of IBS in those with MCAS included cholestatic liver disease (OR 9.95), depression (OR 2.03), anxiety (OR 1.73), female gender (OR 1.64), autoimmune disorders (OR 1.63), and asthma (OR 1.56).

## Table 1 Multivariable Regression Model Results

Variable	Univariable Odds Ratio	95% Confidence Interval	Multivariable Odds Ratio	95% Confidence Interval
Diabetes Type 2	1.67	1.15-2.43	1.12	0.71-1.77
Acute Facility	1.72	1.20-2.45	1.99	1.37-2.88
Hypertension	1.58	1.20-2.10	0.98	0.69-1.39
Female Gender**	1.79	1.33-2.40	1.64	1.20-2.22
African American Race*	0.76	0.47-1.22	0.88	0.54-1.44
Other Race*	0.57	0.36-0.90	0.63	0.39-1.01
Nicotine Use Disorder	1.56	1.06-2.31	1.02	0.66-1.58
Hyperlipidemia	1.60	1.15-2.24	1.08	0.71-1.63
Anxiety	2.97	2.09-4.23	1.73	1.14-2.63
Obesity	2.36	1.58-3.51	1.30	0.81-2.07
Depression	3.82	2.62-5.58	2.03	1.29-3.19
Long Term Medications	2.19	1.33-3.61	1.52	0.88-2.63
Allergic Rhinitis	2.65	1.66-4.23	1.62	0.96-2.73
Asthma	2.83	1.96-4.08	1.56	1.02-2.37
Autoimmune Disorders	2.58	1.93-3.45	1.63	1.16-2.30
Steroid Use	3.92	2.16-7.09	1.52	0.76-3.04
Arthritis	4.23	1.67-10.69	2.53	0.92-6.94
Food Allergy	2.86	1.53-5.33	1.38	0.68-2.81
Cholestatic Liver	11.67	1.94-70.16	9.95	1.47-67.41

## Conclusion

- MCAS and IBS have symptom overlap with diarrhea and abdominal cramping. 11.48% of MCAS patients had IBS, indicating it may be worthwhile to inquire about bowel habits.
- Clinicians should also consider autoimmune thyroid disease in MCAS patients. There may be merit in exploring IBS therapies for MCAS patients.