

## Introduction:

- Metabolic syndrome (MetS) is an increasingly prevalent pathological condition with multiple components such as insulin resistance, hyperlipidemia and increased abdominal adiposity.
- MetS has previously been associated with increased risk of coronary artery disease (CAD), myocardial infarction (MI), stroke and diabetes.
- It has been well established with many atherosclerotic processes, however its impact on the development of mesenteric ischemia has not been studied.
- The purpose of this study is to evaluate if an association between mesenteric ischemia and MetS exists.

## Methods:

- We queried a commercial database (Explorys Inc, Cleveland, OH) with electronic medical record data from 26 major U.S. healthcare systems. Adult patients ( $\geq 18$  years old) with and without MetS between 1999 and 2020 were identified based on systematized nomenclature of medicine-Clinical Terms (SNOMED-CT).
- Differences in baseline characteristics and demographics were analyzed using chi-squared tests. Odds ratio analyses were performed between MetS and non-MetS patients for the presence of acute mesenteric ischemia (AMI), chronic mesenteric ischemia (CMI), coronary artery disease (CAD), peripheral vascular disease (PVD), myocardial infarction (MI), cerebrovascular accident (CVA).

## Results:

- A total of 102,360 individuals were found to with and without MetS in the database.
- Of those patients, 1360 (1.3%) had MetS.
- MetS patients were more likely to be under the age of 65 (35.3% vs 20.9%,  $P < 0.0001$ ), more likely to be female (66.9% vs 63.6%,  $P = 0.0399$ ), identified more commonly as White (84.6% vs 80.8%,  $P < 0.0001$ ) and were more likely to be smokers (86.8% vs 71.5%,  $P < 0.0001$ ).
- MetS patients were more likely to have CAD (OR: 1.65,  $P < 0.0001$ ), PVD (OR: 1.99,  $P < 0.0001$ ), MI (OR: 1.42,  $P < 0.0001$ ) and CVA (OR: 1.44,  $P < 0.0001$ ).
- There was no difference in acute or chronic mesenteric ischemia.

## Discussion:

- This study found no association between MetS and mesenteric ischemia but did have similar findings relating to other established cardiovascular conditions in other studies.
- This suggests that another atherosclerotic mechanism exists which contributes to mesenteric ischemia, particularly chronic mesenteric ischemia.

## Metabolic Syndrome is Not Associated with Mesenteric Ischemia

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Event	MetS (N=1,360)	MetS (%)	No MetS (N=101,000)	Non-MetS (%)	P-Value	Odds Ratio	Confidence Interval
Acute mesenteric ischemia	540	39.7%	38,110	37.7%	0.1361	1.0867	0.9741, 1.2123
chronic mesenteric ischemia	300	22.1%	22,540	22.3%	0.8204	0.9852	0.8659, 1.1208
Coronary artery disease	710	52.2%	40,170	39.8%	0.0001	1.6541	1.4860, 1.8412
Peripheral arterial/vascular disease	960	70.6%	55,140	54.6%	0.0001	1.9961	1.7752, 2.2445
Myocardial infarction	390	28.7%	22,220	22.0%	0.0001	1.4255	1.2662, 1.6048
Stroke	490	36.0%	28,380	28.1%	0.0001	1.4412	1.2891, 1.6113
<b>Characteristics</b>					<b>Chi-square</b>		
Female	910	66.9%	64,270	63.6%	0.0399		
Male	450	33.1%	36,720	36.4%	0.1481		
>65	880	64.7%	70,450	69.8%	0.0011		
18-65	480	35.3%	21,150	20.9%	0.0001		
White	1,150	84.6%	81,580	80.8%	0.0011		
AA	150	11.0%	10,580	10.5%	0.8428		
Asian	20	1.5%	1,340	1.3%	0.9376		
Multirace	20	1.5%	910	0.9%	0.7803		
Unknown	210	15.4%	13,210	13.1%	0.3276		
Other	50	3.7%	2,450	2.4%	0.5543		
Refused	30	2.2%	1,590	1.6%	0.796		
Hispanic/Latino	N/A	N/A	610	0.6%	N/A		
asian/pacific islander	N/A	N/A	180	0.2%	N/A		
native america/alaskan native	N/A	N/A	120	0.1%	N/A		
Cardiomyopathy	220	16.2%	10,430	10.3%	0.0046		
CHF	470	34.6%	27,770	27.5%	0.0006		
COPD	530	39.0%	31,960	31.6%	0.0003		
HTN	1,250	91.9%	76,780	76.0%	0.0001		
HLD	1,230	90.4%	65,310	64.7%	0.0001		
DM	910	66.9%	34,430	34.1%	0.0001		
CKD	600	44.1%	29,730	29.4%	0.0001		
ESRD	160	11.8%	7140	7.1%	0.023		
Presence of cirrhosis	140	10.3%	5,100	5.0%	0.0051		
Alcohol abuse	80	5.9%	5,860	5.8%	0.9697		
tobacco abuse/smoking	1,180	86.8%	72,240	71.5%	0.0001		
Obesity	920	67.6%	23,330	23.1%	0.0001		



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