

Clinical Manifestations of Fibromuscular Dysplasia Vary by Patient Sex: A Report of the United States Registry for FMD

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Background: Fibromuscular dysplasia (FMD) is an arteriopathy which may lead to stenosis, aneurysm, or dissection. Whether clinical manifestations of FMD vary by sex is unknown.

Methods: Demographics, medical history, presenting signs and symptoms, and vascular manifestations were queried from the United States Registry for FMD and stratified according to sex.

Results: Of the 615 patients enrolled at 10 centers as of 9/11/2012, 52 patients were male (8.5%). Clinical manifestations stratified by sex are shown in the Table. There was no difference in mean age at diagnosis or number of arterial beds involved between men and women. Women presented more frequently with signs and symptoms related to carotid FMD; men presented more frequently with signs and symptoms related to renal FMD. Despite no differences in family history, the prevalence of arterial dissection and aneurysm was twice as frequent in men. The most common site of arterial dissection in men was the renal artery, while the extracranial carotid artery was the most common site of dissection in women ($p < 0.05$ for both). Aneurysms were most common in the aorta and celiac artery in men ($p < 0.05$ for both) and most common in the renal arteries in women ($p = \text{NS}$).

Conclusion: While FMD more commonly affects women, there are important sex-related differences in the clinical manifestations. Men with FMD have higher rates of arterial dissection and aneurysm and prevalence of renal artery manifestations. Cerebrovascular signs and symptoms are more common in women.

	All Patients N=615 No. (%)	Male N=52 No. (%)	Female N=563 No. (%)	P-value
Age at diagnosis (mean ± SD)	51.9±13.5	52.1±16.6	51.9±13.1	0.94
Family history of aneurysm	105/493 (21.3)	9/42 (21.4)	96/451 (21.3)	1.0
Family history of dissection	10/474 (2.1)	1/39 (2.6)	9/435 (2.1)	0.58
Presenting Signs or Symptoms				
Headache	305/537(56.8)	22/47 (46.8)	283/490 (57.8)	0.17
Pulsatile tinnitus	168/503 (33.4)	4/44 (9.1)	164/459 (35.7)	0.0002
Cervical bruit	123/496 (24.8)	2/44 (4.5)	121/452 (26.8)	0.0004
Neck pain	124/492 (27.2)	6/45 (13.3)	128/447 (28.6)	0.034
Hemispheric TIA	50/523 (9.6)	2/46 (4.3)	48/477 (10.1)	0.29
Stroke	42/532 (7.9)	2/47 (4.3)	40/485 (8.3)	0.57
Hypertension	375/563 (66.6)	36/49 (73.5)	339/514 (66.0)	0.34
Flank/abdominal Pain	85/494 (17.2)	21/48 (43.8)	64/446 (14.3)	<0.0001
Abdominal bruit	53/491 (10.8)	0/43 (0)	53/448 (11.8)	0.009
Renal insufficiency	14/507 (2.8)	4/44 (9.1)	10/463 (2.2)	0.026
Renal infarction	7/100 (7.0)	3/7 (42.9)	4/93 (4.3)	0.0067
Arterial Bed Involvement				
No. arterial beds involved (mean ± SD)	1.8±1.0	1.8±1.2	1.8±0.09	0.84
Median (Q1-Q3)	1 (1-2)	1 (1-2)	1.5 (1-2)	
Renal	382/507 (75.3)	35/39 (89.7)	347/468 (74.1)	0.032
Extracranial carotid	346/476 (72.7)	15/34 (44.1)	331/442 (74.9)	0.00043
Vertebral	110/329 (33.4)	6/27 (22.2)	104/302 (34.4)	0.29
Mesenteric	63/292 (21.6)	11/32 (34.4)	52/260 (20.0)	0.071
Intracranial Carotid	48/281 (17.1)	8/22 (36.4)	40/259 (15.4)	0.033
Any arterial dissection	123/567 (21.7)	19/48 (39.6)	104/519 (20.0)	0.0031
Any arterial aneurysm	124/559 (22.2)	20/49 (40.8)	104/510 (20.4)	0.002
FMD type				
Medial fibroplasia	344/577 (59.6)	26/45 (57.8)	318/532 (59.8)	0.87
Intimal fibroplasia	23/577 (4.0)	3/45 (6.7)	20/532 (3.8)	0.41
Perimedial fibroplasia	2/577 (0.3)	1/45 (2.2)	1/532 (0.2)	0.15
Medial plus intimal	5/577 (0.9)	2/45 (4.4)	3/532 (0.6)	0.051
Other/not reported	203/577 (35.2)	13/45 (28.9)	190/532 (35.7)	0.42