

American College of Radiology
ACR Appropriateness Criteria®

Renovascular Hypertension

Variant 1: High index of suspicion of renovascular hypertension. Normal renal function.

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
CTA abdomen with IV contrast	Usually appropriate	Strong	☹☹☹ 1-10 mSv		8	n/a	0	0	0	0	0	0	0	0	0
		References		Study Quality											
		40 (12601190)		1											
		41 (8686635)		2											
		42 (8662167)		2											
		43 (9676442)		2											
		44 (11849401)		3											
		46 (12490511)		2											
		47 (12148095)		3											
		48 (19561264)		2											
MRA abdomen without and with IV contrast	Usually appropriate	Strong	0 0 mSv	0 0 mSv [ped]	8	n/a	0	0	0	0	0	0	0	0	0
		References		Study Quality											
		33 (21542417)		2											
		34 (21833688)		4											
		36 (25204811)		4											
		38 (11956117)		2											
		39 (12773688)		2											
		37 (12704782)		2											

		35 (23917027)		4												
		32 (12096862)		M												
US duplex Doppler kidneys retroperitoneal	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	7	n/a	0	0	0	0	0	0	0	0	0	0
		References		Study Quality												
		9 (10742425)		3												
		13 (17384038)		4												
		15 (24172238)		4												
		16 (16301720)		2												
		17 (17192278)		4												
		18 (19233590)		3												
		14 (12515376)		4												
		19 (24155154)		3												
		3 (20864945)		4												
ACE-inhibitor renography	May be appropriate	Strong	☼☼☼ 1-10 mSv		5	n/a	0	0	0	0	0	0	0	0	0	0
		References		Study Quality												
		25 (1831342)		3												
		21 (11560453)		M												
		20 (10992024)		4												
		24 (12230421)		2												
		22 (1837991)		4												
		23 (15728620)		3												
		26 (14500224)		3												
		27 (10816399)		2												
		28 (12411867)		4												
MRA abdomen without IV contrast	May be appropriate	Strong	O 0 mSv	O 0 mSv [ped]	5	n/a	0	0	0	0	0	0	0	0	0	0
		References		Study Quality												
		33 (21542417)		2												
		34 (21833688)		4												

		36 (25204811)	4														
		38 (11956117)	2														
		39 (12773688)	2														
		37 (12704782)	2														
		35 (23917027)	4														
		29 (18270376)	1														
		32 (12096862)	M														
		30 (17499952)	1														
		31 (18372471)	1														
	Venography with renal vein sampling	Usually not appropriate	Limited	Varies	Varies	3	n/a	0	0	0	0	0	0	0	0	0	0
		References	Study Quality														
		25 (1831342)	3														
		57 (3160766)	4														
		58 (2944011)	3														
		59 (1994424)	3														
Arteriography kidney	Usually not appropriate	Strong	☼☼☼ 1-10 mSv		3	n/a	0	0	0	0	0	0	0	0	0	0	
		References	Study Quality														
		25 (1831342)	3														
		21 (11560453)	M														
		20 (10992024)	4														
		24 (12230421)	2														
		23 (15728620)	3														
		26 (14500224)	3														
		27 (10816399)	2														
		28 (12411867)	4														

Variant 2: High index of suspicion of renovascular hypertension. Decreased renal function, eGFR <30 mL/min/1.73 m².

Procedure	Appropriateness Category	SOE	Adults RRL	Peds RRL	Rating	Median	Final Tabulations								
							1	2	3	4	5	6	7	8	9
US duplex Doppler kidneys retroperitoneal	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	9	n/a	0	0	0	0	0	0	0	0	0
		References		Study Quality											
		9 (10742425)		3											
		10 (10957652)		3											
		11 (22595689)		2											
		12 (17764871)		4											
		13 (17384038)		4											
		15 (24172238)		4											
		16 (16301720)		2											
		17 (17192278)		4											
		18 (19233590)		3											
		14 (12515376)		4											
		19 (24155154)		3											
		3 (20864945)		4											
		MRA abdomen without IV contrast	Usually appropriate	Limited	O 0 mSv										O 0 mSv [ped]
		References		Study Quality											
		66 (23096208)		3											
		65 (21098205)		2											
		64 (18728334)		3											
CTA abdomen with IV contrast	May be appropriate	Limited	☢☢☢ 1-10 mSv		5	n/a	0	0	0	0	0	0	0	0	
		References		Study Quality											
		7 (-3132600)		4											
MRA abdomen without and with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	3	n/a	0	0	0	0	0	0	0	0	
		References		Study Quality											
		66 (23096208)		3											

Appendix Key

A more complete discussion of the items presented below can be found by accessing the supporting documents at the designated hyperlinks.

Appropriateness Category: The panel's recommendation for a procedure based on the assessment of the risks and benefits of performing the procedure for the specified clinical scenario.

SOE: Strength of Evidence. The assessment of the amount and quality of evidence found in the peer reviewed medical literature for an appropriateness recommendation.

- **References:** The citation number and PMID for the reference(s) associated with the recommendation.
- **Study Quality:** The assessment of the quality of an individual reference based on the number of study quality elements described in the reference.

RRL: Relative Radiation Level. A population based assessment of the amount of radiation a typical patient may be exposed to during the specified procedure.

Rating: The final rating (1-9 scale) for the procedure as determined by the panel during rating rounds.

Median: The median rating (1-9 scale) for the procedure as determined by the panel during rating rounds.

Final tabulations: A histogram showing the number of panel members who rated the procedure as noted in the column heading (ie, 1, 2, 3, etc.).

Additional supporting documents about the AC methodology and processes can be found at www.acr.org/ac.