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RESEARCH ARTICLE

RETROSPECTIVE STUDY OF PATIENTS FOLLOWING RENAL REVASCULARISATION PROCEDURES - AN INSTITUTIONAL EXPERIENCE.

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Keywords:-

renovascular hypertension(RVH), Renal artery stenosis(RAS),renal artery angioplasty, aortorenal bypass, aortorenalendarterectomy.

Abstract

Aim and Objectives:To study the clinical presentation of patients with renal artery disease and its outcome following revascularisationprocedures .

Type of study: Retrospective study

Study period: July 2013 to June 2018

Material and Methods: This is a retrospective study we made on eleven patients presented with renal artery disease either as uncontrolled hypertension(>160/100mmHg)or in association with peripheral arterial disease, at the Institute of vascular surgery , RGGGH, Chennai. These patients were subjected for open or endovascular revascularisation procedures depending on their clinical characteristics and the type of disease. Following revascularisationprocedures , these patients were followed up at 2nd week, 1st month, 3rd month and 6th monthly thereafter during the study period and the outcomes are analysed and tabulated here to present our institutional experience.

Inclusion criteria:

1. Renal artery stenosis with uncontrolled HTN (>160/100mmHg) on >3 antihypertensive drugs.
2. Renal artery stenosis with recurrent episodes of pulmonary edema
3. Renal artery stenosis with Peripheral arterial disease causing life stye limiting claudication pain or CLI

Exclusion criteria:

1. Renal artery stenosis with normotensive Blood pressure(<140/90mmHg) on medication
2. Renal artery stenosis with preserved renal function as estimated by GFR(90ml/min) .

Results: In this retrospective study on 11 patients with renal artery stenosis, 7 were women and 4 were men. Amongst the 7 women, 5 of them presented with uncontrolled HTN secondary to Takayasuarteritis , 2 of the remaining patients presented with 2 episodes of flash pulmonary edema HTN with atherosclerotic disease associated RAS. Amongst the 4 men, 3 of them presented with RAS secondary to atherosclerosis with recurrent pulmonary edema while on antihypertensive medications and one patient was diagnosed to have Fibromuscular dysplasia with RAS and uncontrolled HTN while on 4

antihypertensive medications. All 5 women with Takayasu arteritis were managed with renal artery angioplasty, of these 2 of them were done aortoplasty for Mid aortic syndrome in the same sitting. The remaining 2 women were treated with aortobirenal bypass using synthetic graft for atherosclerotic renovascular hypertension. Amongst the 4 men, 2 of them were subjected for aortorenalarterectomy with Aortobifem bypass for atherosclerotic disease with disabling claudication pain in 1 and critical limb ischemia in the other, one male patient with atherosclerotic disease was done aortounirenal bypass using synthetic graft for atherosclerotic renovascular hypertension. The remaining one male patient with renovascular hypertension secondary to Fibromuscular dysplasia was done renal artery angioplasty but during follow up period he developed pulmonary edema with uncontrolled hypertension while on 2 antihypertensive medications subsequently patient was managed with aortobirenal bypass using hypogastric artery and synthetic graft as conduit. In the follow up period, all patients showed improvement in the control of hypertension in the immediate post op period, 2 patients among the Takayasu arteritis group needed immunosuppressant therapy for control of disease activity, 1 patient developed restenosis ended up in need for reintervention and the remaining 2 patients had good control of hypertension with single medication. All 5 atherosclerotic renovascular hypertensive patients showed good improvement in hypertension control and no recurrence of pulmonary edema in the follow up period. One patient with Fibromuscular dysplasia associated renovascular hypertension following surgical revascularisation became free off antihypertensive medications.

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Introduction:-

Renovascular hypertension is one of the common vascular entity that goes unnoticed if not anticipated when a young patient present with hypertension. Evaluation of these patients need interdisciplinary approach involving radiologist, vascular surgeon and rheumatologist. Management of renovascular hypertension can be accomplished by medical therapy, surgical revascularisation by open or endovascular procedures like angioplasty or stenting. We have presented our institutional experience of renovascular hypertension management with angioplasty, aortorenal bypass and aortorenalarterectomy procedures treatment being tailored based on etiology of renovascular hypertension with literature references.

Baseline characteristics:-

Male	4 (36.36%)
Female	7 (63.63%)
Takayasu arteritis	5(45.45%)
Aortoplasty	2
Fibromuscular dysplasia	1 (9%)
Atherosclerosis Renovascular hypertension	5(45.45%)
Renal angioplasty	6
Renal artery endarterectomy	2
Aortorenal bypass	4
Complications	0

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Discussion:-

Renovascular hypertension causing deterioration of renal function resulting in end stage renal disease , congestive cardiac failure, recurrent flash pulmonary edema and reduced life expectancy. In our institute at RGGGH, we did retrospective study on 11 patients who presented with renovascular hypertension with recurrent flash pulmonary edema/uncontrolled hypertension or as renal artery disease in the presence of significant peripheral arterial disease in need of revascularisation procedure. we did renal angioplasty to all 5(45.45%) Takayasuarteritis(a) patients with renovascular hypertension (b) with uncontrolled hypertension or as recurrent pulmonary edema. we used high pressure balloon to dilate the arteries in view of fibrotic nature of stenosis, though it is known short term results are good, 2(40%) of these patients needed immunosuppressant therapy to control disease activity to maintain disease remission and long term patency and one(20%) patient developed restenosis after 6 months of primary procedure subjected for reintervention with repeat angioplasty(c). one patient with renovascular hypertension secondary to fibromuscular dysplasia was managed with renal artery angioplasty , showed improvement in hypertension control with 2 medications on followup , but after 6 months he presented with uncontrolled hypertension while on 2 drugs, duplex scan revealed restenosis of renal artery, he was done aortorenal bypass , postoperatively patient become normotensive on single medication(d). Two women() with renovascular hypertension secondary to atherosclerosis were treated with aortobirenal bypass , two men were subjected for aortorenalendarterectomy coupled with aortobifem bypass in view of critical lower limb ischemia (f), similarly one male patient with single functioning kidney with significant RAS associated with pulmonary edema and uncontrolled hypertension was managed with aortounirenal bypass successfully. All these patients had shown good improvement in the control of hypertension except for one patient with fibromuscular dysplasia as etiology who needed reinterventionaccomplished by open surgical revascularisation.

Conclusion:-

Literature review and our institutional experience in renal revascularisation for renovascular hypertension has shown good outcome in terms of control of hypertension with single or no antihypertensive medication following revascularisation, but these patients need to be kept under follow up long term patency assessment. Selection of procedure whether it be open surgery or endovascular is based on the etiology of renovascularhypertension.

Disclosure Statement:-

No conflict of interest

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