

RENAL ARTERY TOTAL OCCLUSION :

Clinical situation may demand Intervention

Dr. P C Mondal



- Passed MBBS in 1990 from R G Kar Medical College & Hospital
- MD – from IPGMER in 1996
- DNB-Medicine from PGIMER in 1997
- DM (Cardio) – 2001
- DNB Cardiology from SGPGI in 2002
- MRCP (UK)
- MRCP (Ire)
- MRCPS (Glasgow)
- FACC (USA) – 2008
- Interventional fellowship from Mc. Grill University, Canada.
- Published '96' papers in International journals.
- Presently working as Consultant Interventional Cardiologist in Apollo Gleneagles Hospital, Kolkata.

Randomized Trials of Renal Artery Stenting versus Medical Therapy

STUDY	n	YEAR	INDICATION	ANGIOPLASTY ALONE	BLOOD PRESSURE OUTCOME	RENAL FUNCTION OUTCOME
EMMA	59	1998	HTN with unilateral RAS	91%	NS	—
SNRASCG	55	1998	Resistant HTN	80%	—	NS
DRASTIC	106	2000	Resistant HTN	96%	NS	—
ASTRAL	803	2009	Resistant HTN With CRI	7.0%	NS	NS
STAR	138	2009	CRI	1.6%	NS	NS
NITER	52	2009	Resistant HTN With CRI	0	NS	NS
CORAL	947	2013	Resistant HTN With CRI	94.6%	NS	NS

CLINICAL H/O

- Mr. Pillai , 67 yrs male, ex-bank officer.
- Type-II DM for 15 yrs. On OHA.
- Smoker.
- Hypertensive for 10 yrs.
- Hypothyroid on replacement.
- CAD → CABG on 2003.
- Poor follow up.

CLINICAL H/O

- Apparently well till January 2013.
- Presented to another hospital with features of congestive cardiac failure.
- Stabilized medically → significant renal impairment. (Serum Creatinine 5.6mg%).
- ECHO → Concentric LVH. LVEF-60%. Grade-II diastolic dysfunction.

CLINICAL H/O

- CAG → Native TVCAD. Occluded LIMA → LAD Graft. Patent RSVG graft to D2, D3, and PDA.
- Good LV function.
- PTCA with stenting to LAD done on 19/1/2013.
- Renal function deteriorated.
- Haemodialysis initiated for azotaemic symptoms.

CLINICAL H/O

- Presented to Apollo Hospital Emergency with severe respiratory distress → found to have massive pulmonary edema.
- Treated conservatively with I/V inj. GTN. Inj. Lasix. Intubated and ventilated.
- Became stable Ex-tubated on 3rd day.
- On regular H/D. Plan to be discharged.
- But again developed massive pulmonary edema.

C. KESAVA PILLAI 67Y/M^{AAA}
M
33910/817/2013

DR. P C MONDAL^{AAA}
APOLLO GLENEAGLES HOSPITALS, KOLKATA
20130213
152853.943

Lao - 0 deg , Caud - 1 deg
Zoom: 99%

SoftLink
International

Run 1 Of 29
Frame 1 Of 28



Inclusion Criteria

Clinical Syndrome:

- Hypertension ≥ 2 anti-hypertensive medications, OR
- Renal dysfunction defined as Stage 3 or greater CKD

-AND-

Atherosclerotic Renal Artery Stenosis:

- Angiographic: $\geq 60\%$ and $< 100\%$, OR
- Duplex: systolic velocity of >300 cm/sec, OR
- Core lab approved MRA, OR
- Core lab approved CTA

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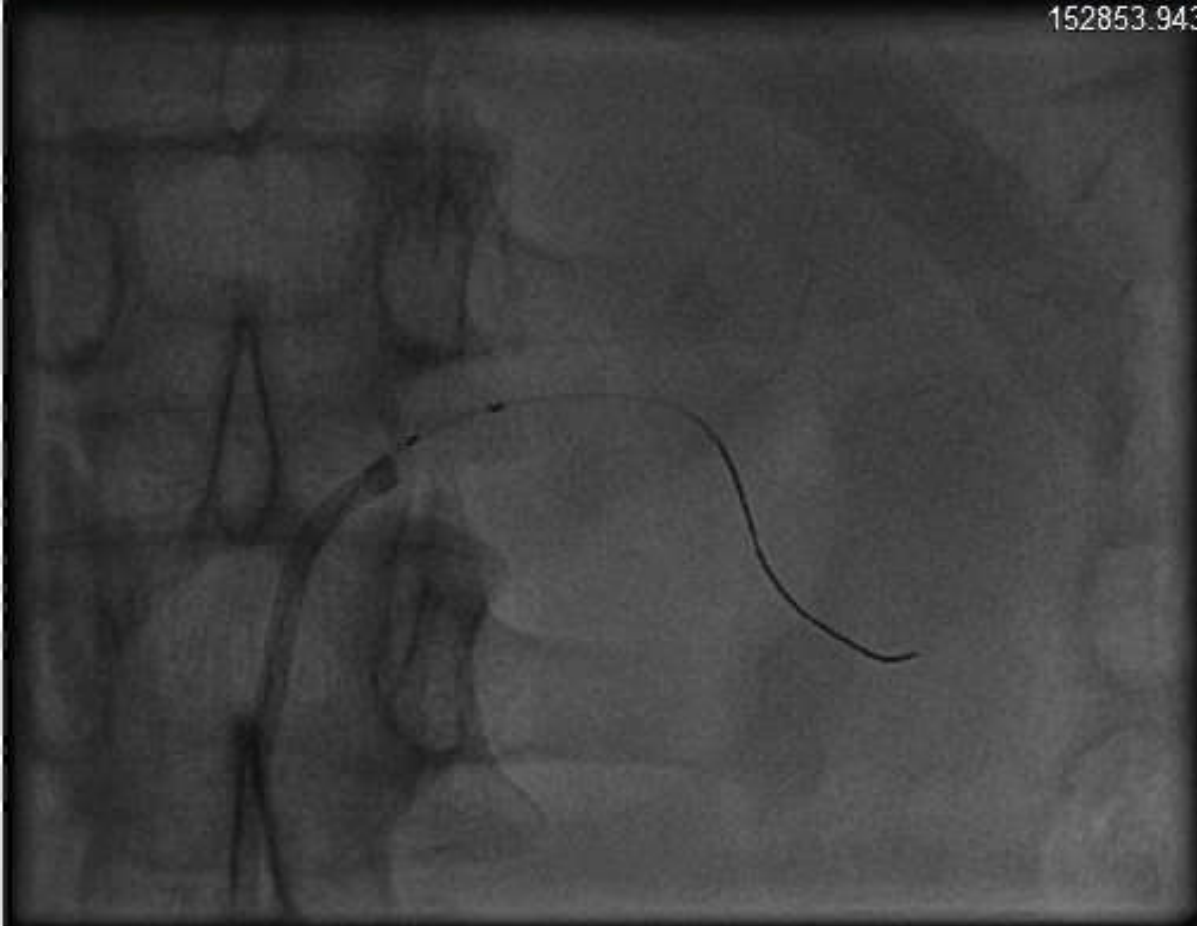
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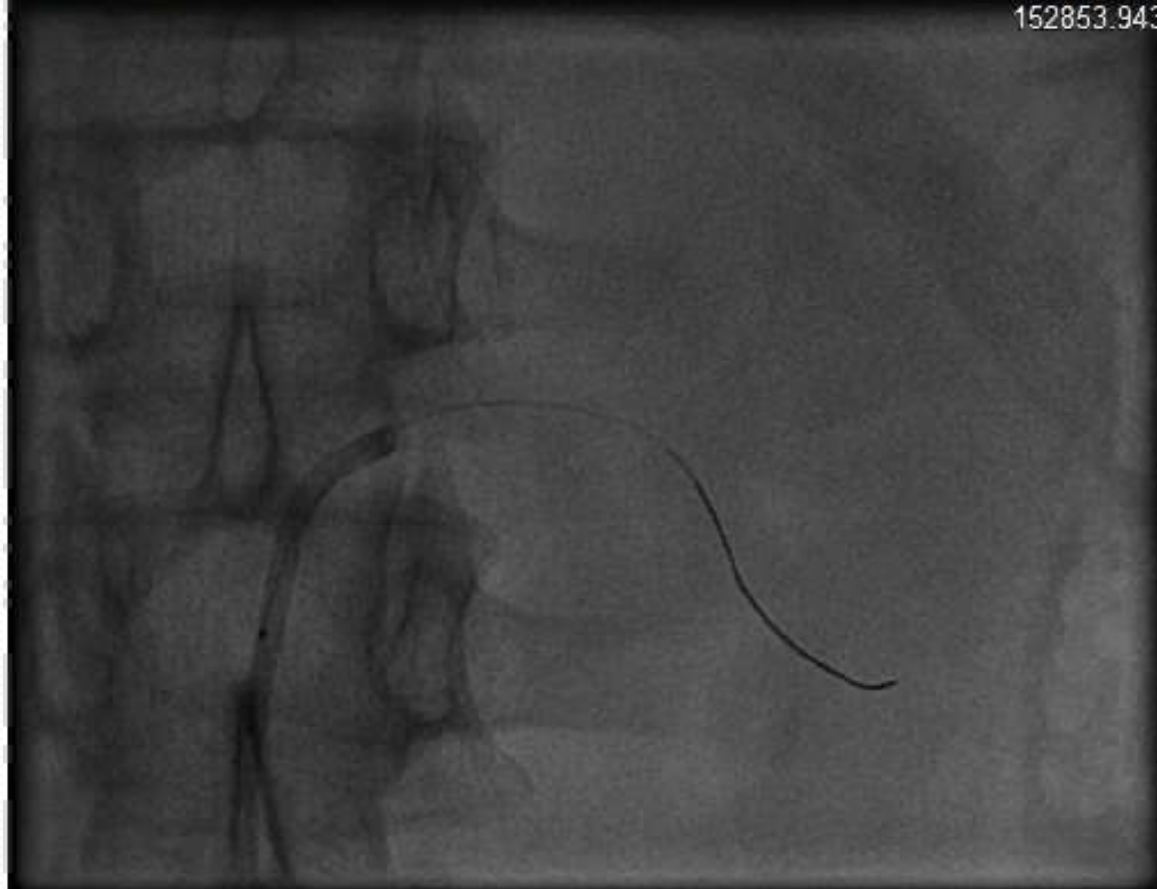
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Lao - 1 deg ,Caud - 0 deg
Zoom: 99%

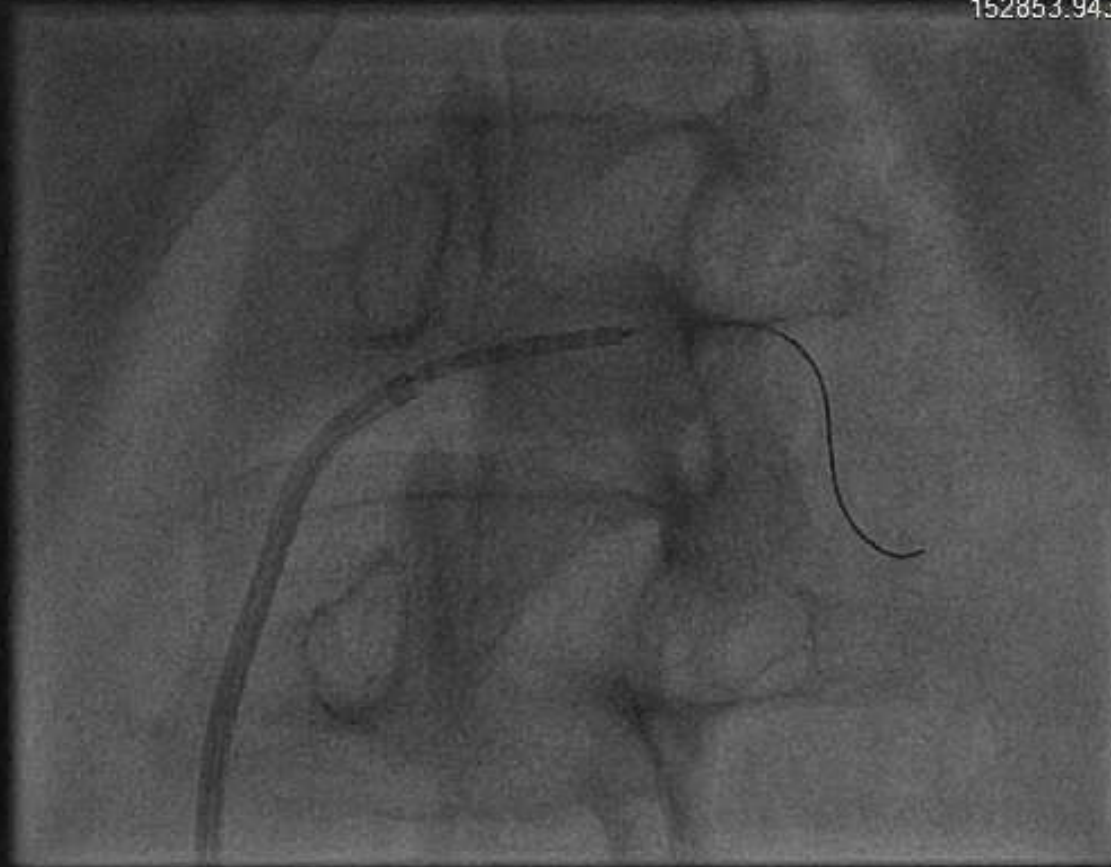
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Lao - 28 deg ,Caud - 4 deg
Zoom: 99%

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Rao - 1 deg ,Caud - 2 deg
Zoom: 99%

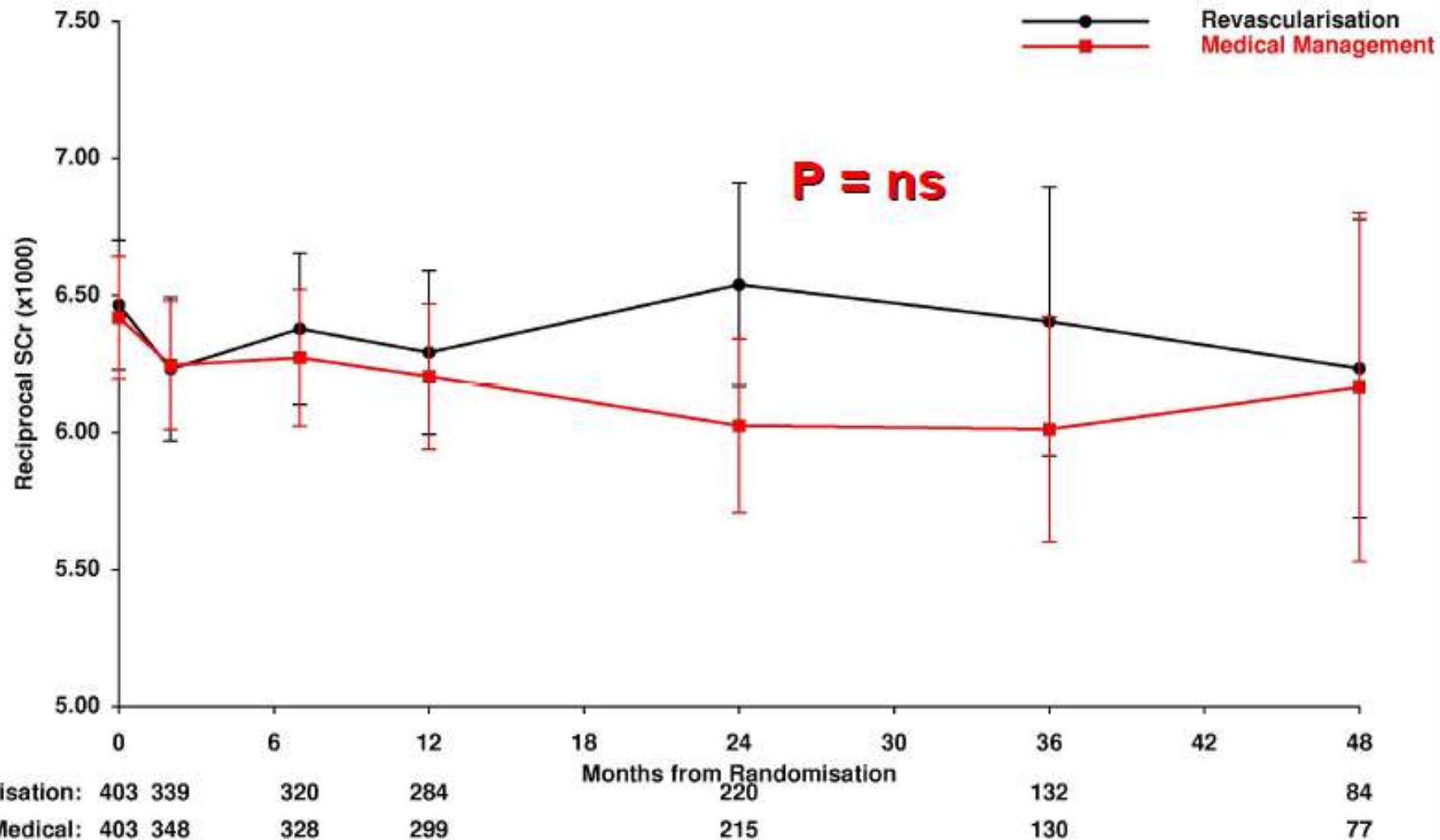
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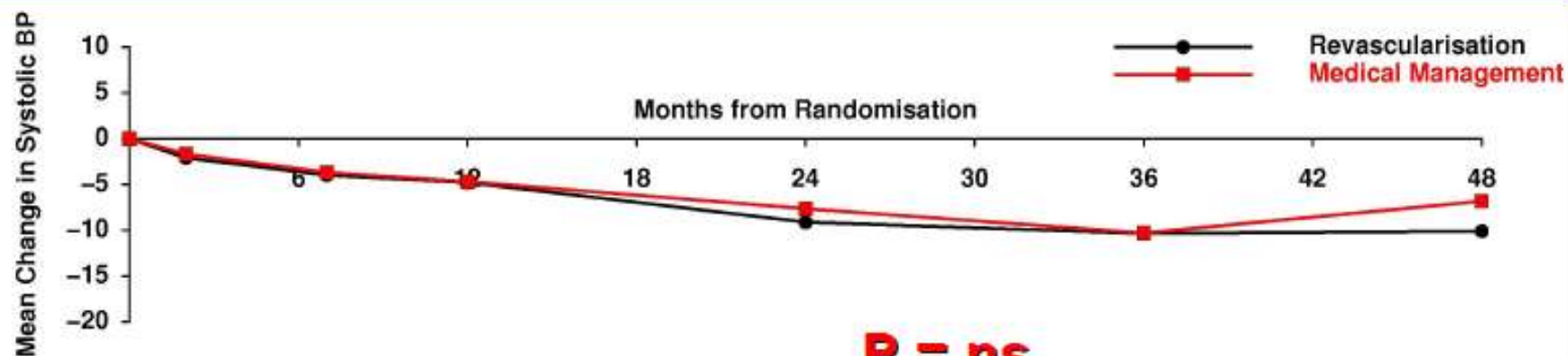
FOLLOW UP

- Had hypertensive surge with BP → 210/120mmHg.
- Second artery not attempted.
- Diuresis improve from 2nd day.
- Renal function started improving with time.
- Patient taken off dialysis.
- Creatinine 1.4mg% after 2months.

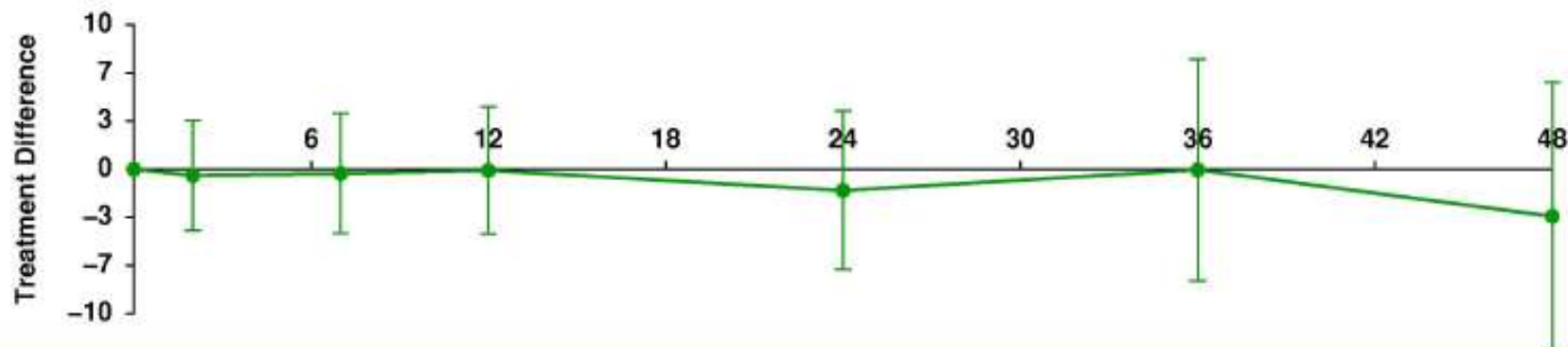
ASTRAL: Primary Endpoint, 1/Cr



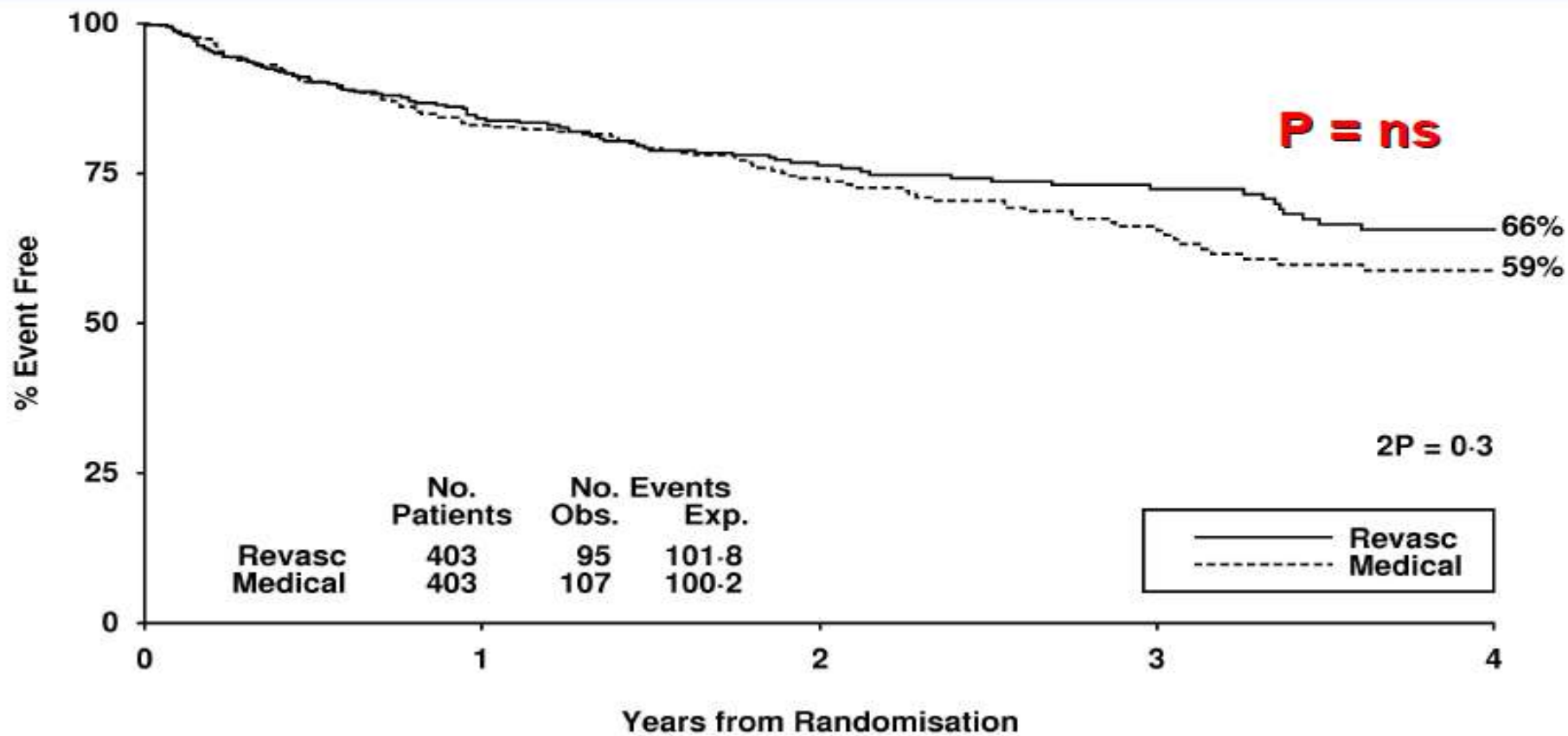
ASTRAL: Change in Systolic BP



Revascularisation:	384	330	315	274	216	137	83
Medical:	388	341	327	290	211	127	81



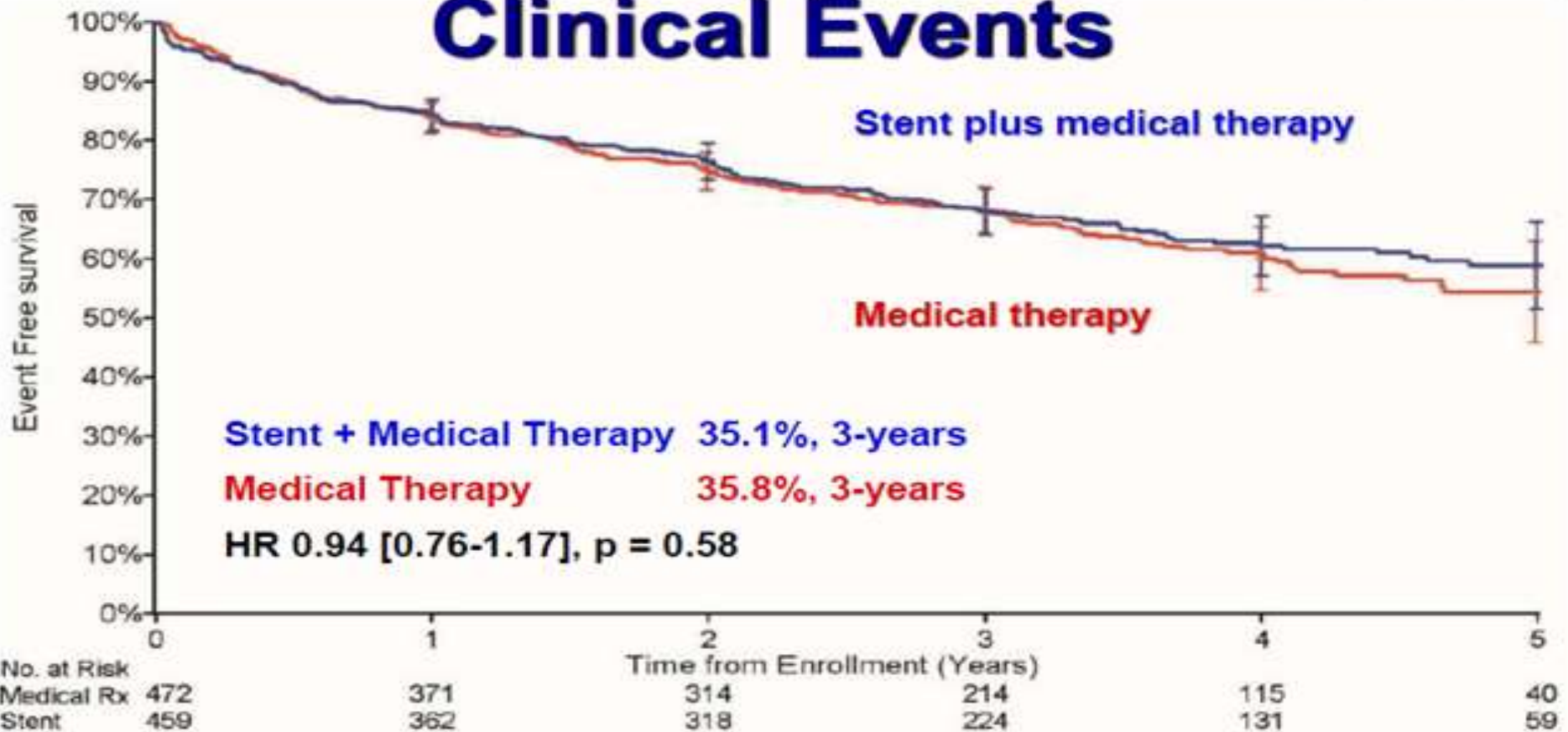
ASTRAL Event Composite: MI, Stroke Vascular Death Hospitalization for Angina, Fluid Overload or CHF



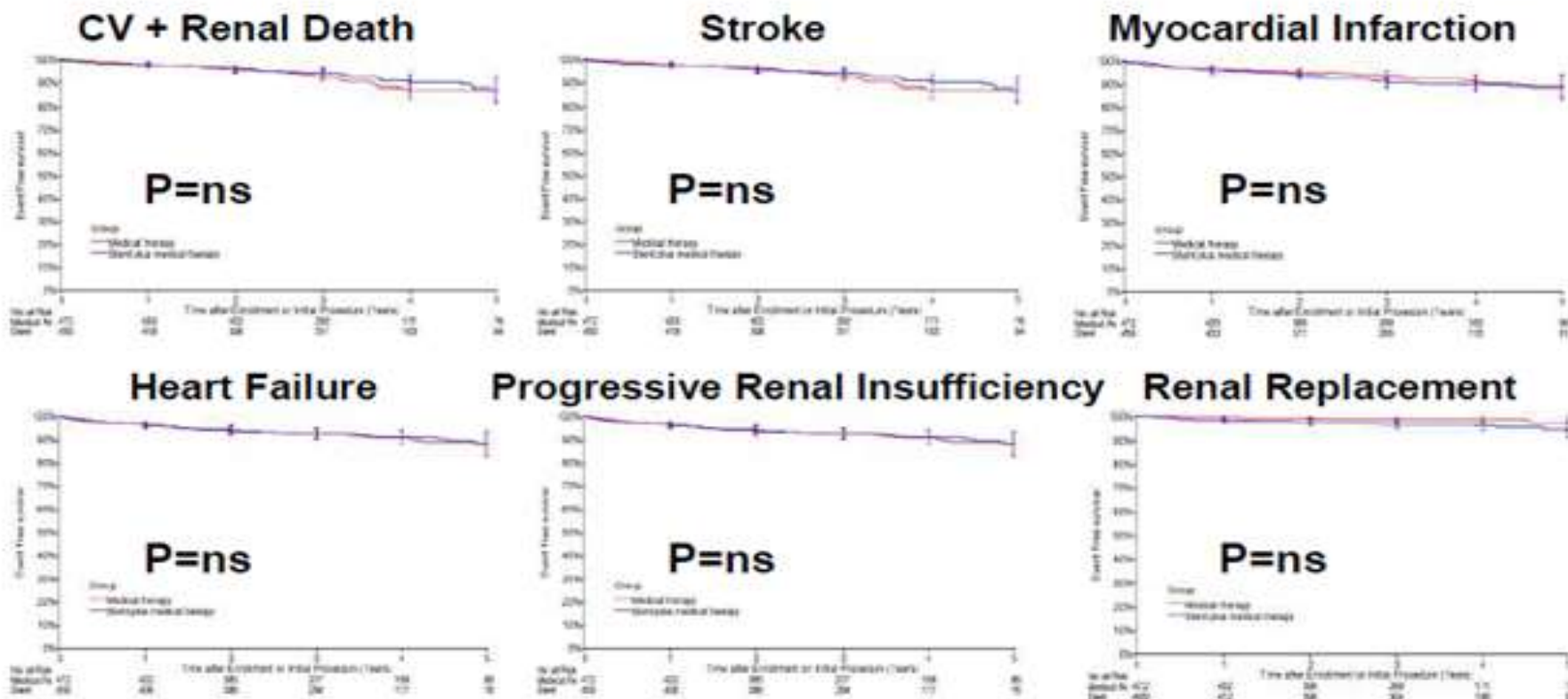
At risk:

Revasc	403	246	159	104	54
Medical	403	251	158	94	50

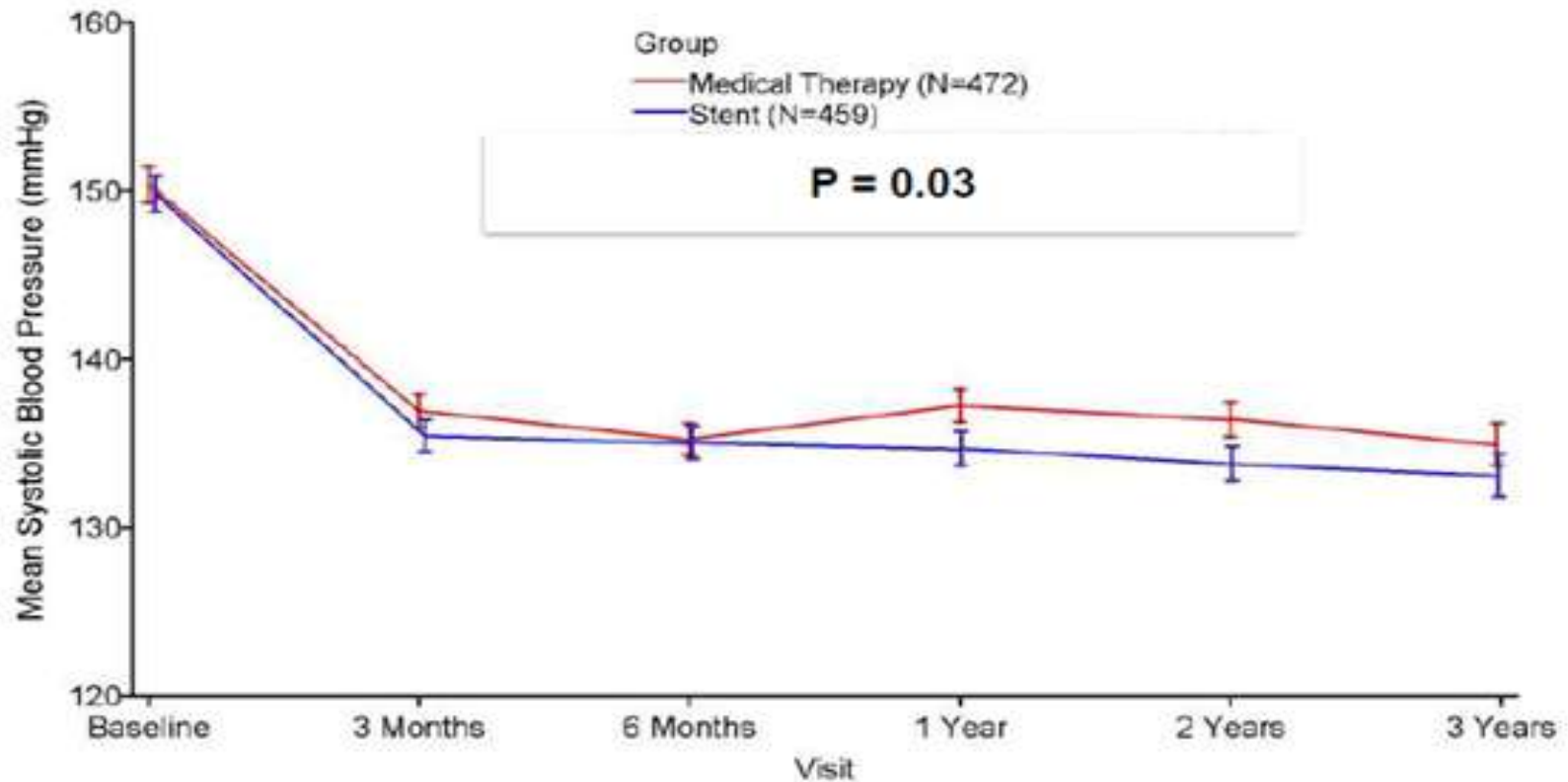
Results: Primary Endpoint Clinical Events



Results: Secondary Endpoints



Results: Systolic Blood Pressure



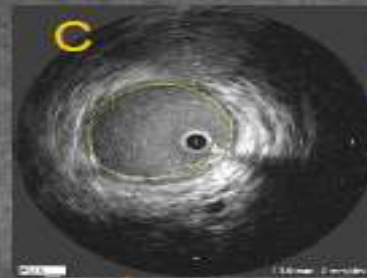
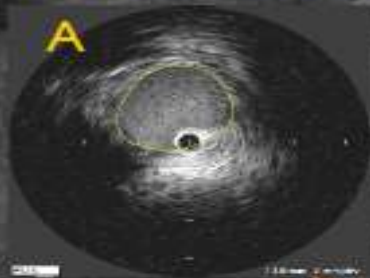


The Lottery Effect

Research has shown that one of the most powerful ways to encourage behavior is through *positive random reinforcement*.

MLA= 6.8 mm²
MLD=2.69 mm

LA=29 mm²
LD=7.2 mm



RLA= 24 mm²
RD =6.6 mm

IVUS DS=72%

MLD=2.30 mm

RD=5.35 mm

DS=57%

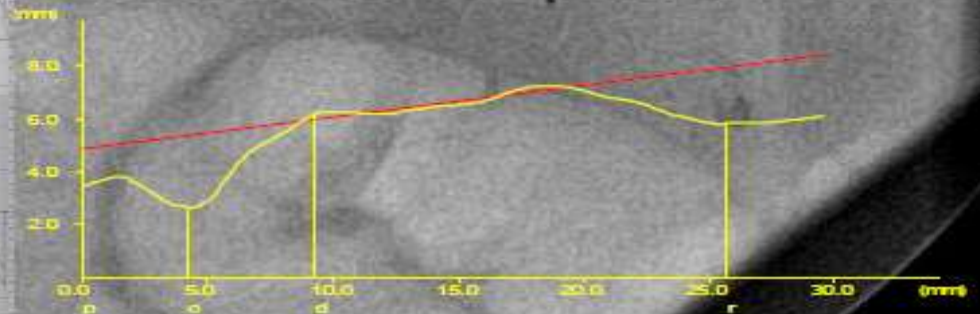
15 mm Hg

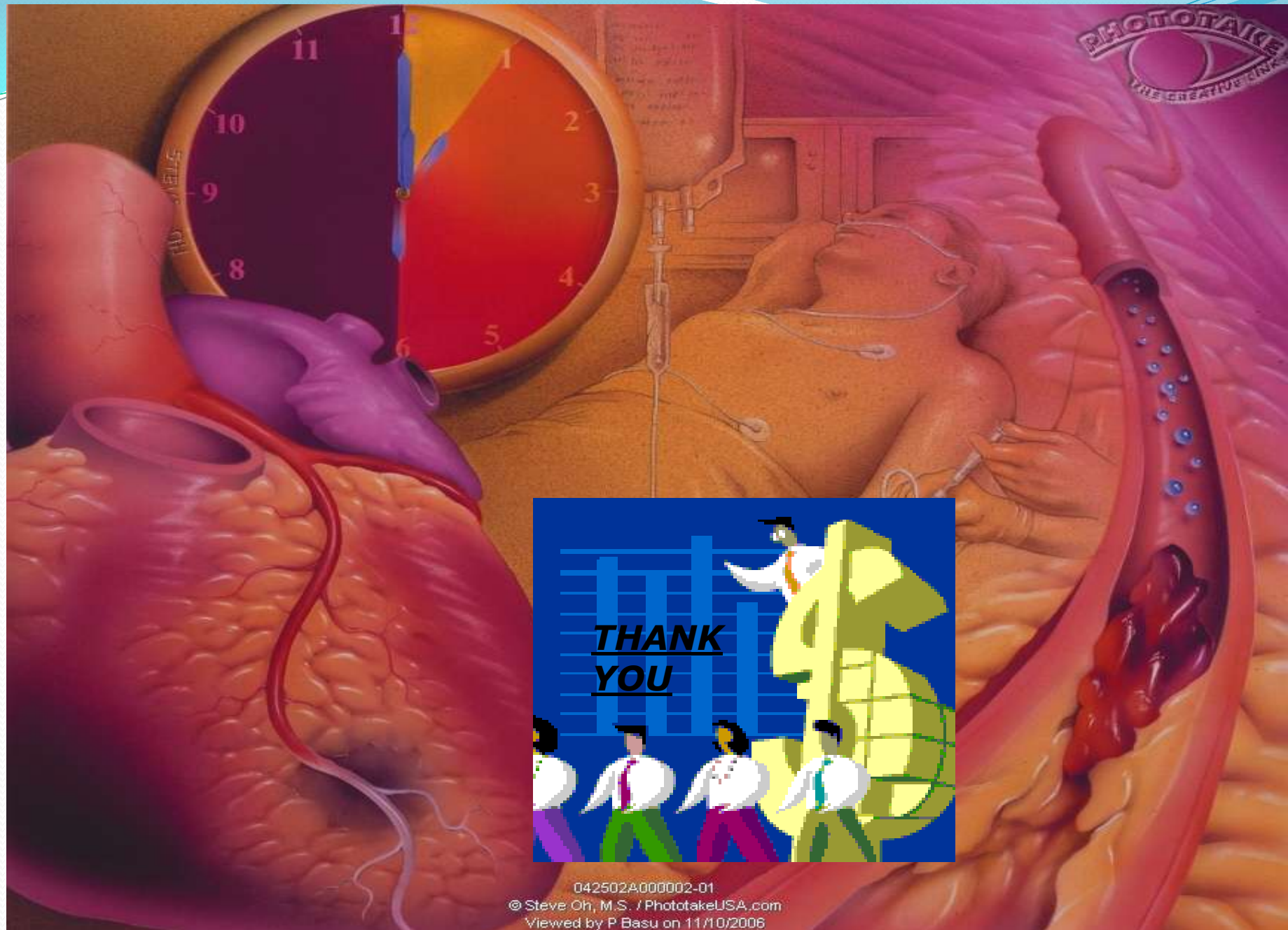
After crossing
The stenosis

31 mm Hg

After papaverine

FFR=0.89





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Viewed by P Basu on 11/10/2006