

Frontier Cardiology

Imperial College Healthcare NHS Trust

with

Harrow Health

Iqbal Malik and Chris Jenner

www.LondonCardioVascularCinic.co.uk



Introduction to Frontier Cardiology



Housekeeping

- ▣ Interactive
- ▣ No planned fire alarms

Aim

- ▣ Cover key topics
 - AF
 - IHD
 - Complex Cardiac Interventions
 - Cases

Session 1

- ▣ 9.00 Refreshments
 - ▣ 9.30 Welcome and Introduction
 - ▣ 9.50 Who to refer to MAU David Lubel
- What does the report mean?
- ▣ 10.05 Holter abnormal Boon Lim
 - ▣ 10.30 Abnormal Echo Jamil Mayet
 - ▣ 11.00 Cases

Session 2

Coronary disease/ AF/ Valves

- ▣ 11.30 Rapid Access CPC Yvonne
- ▣ 11.40 Rapid Access Arrhythmia Boon Lim
- ▣ 11.50 Debate
Surgery is best for AVR Andy C.
TAVI should be considered IM
- ▣ 12.30 Lunch

Session 3

Complex Cardiac Interventions

- ▣ 1.30 New Cardiac Drugs Darrel Francis
- ▣ 1.45 PFO/ASD/RDN IM
- ▣ 2.00 Defibs and Bivent Nick Peters
- ▣ 2.10 Heart failure in the house Darrel Francis

Cases to make your day

- ▣ 2.30 Chest Pain IM
- ▣ 2.40 Breathless Darrel Francis
- ▣ 2.50 Palpitation Nick Peters

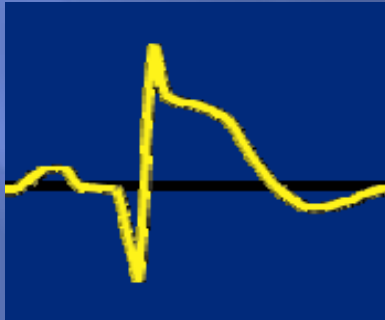
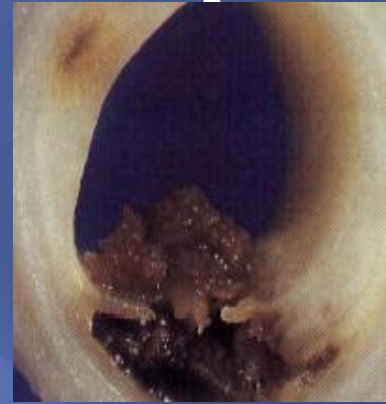
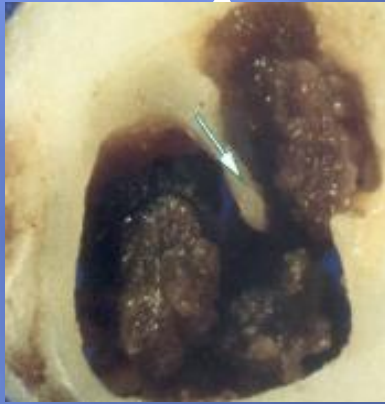
Summary

- ▣ Thanks to BMI Clementine
- ▣ Summary and Close 3.30-3.45

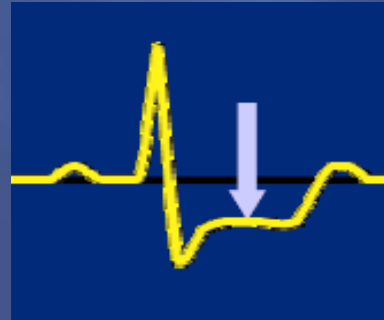
ACUTE CHEST PAIN 24/7 IS BEST

Iqbal Malik

Acute Coronary Syndromes



ST elevation

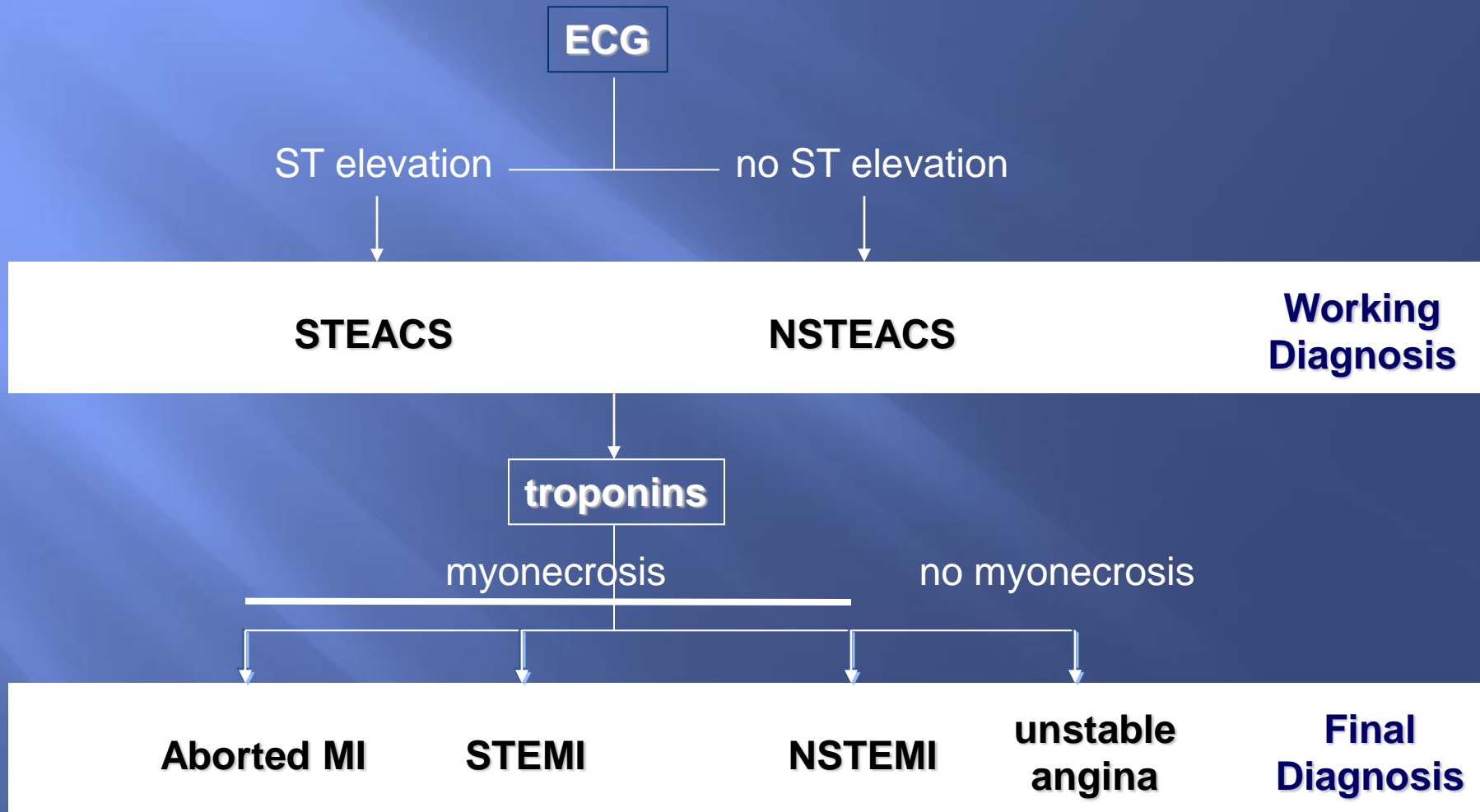


ST depression



T wave inversion

Evaluation of Suspected Acute Coronary Syndrome



Treatment Options for NSTEMI

aspirin and/or **clopidogrel/prasugrel/ticagrelor**

UF

**140 DIFFERENT
THERAPEUTIC
COMBINATIONS**

udin

routine or **selective invasive strategy**

immediate or **delayed angiogram**

Management of suspected NSTEMI/ACS

*Adapted from ESC guidelines Eur Heart J 2007; 28 : 1598
NICE 2010*

1. Initial Evaluation & Treatment

History, Examination, ECG, first-line medical therapy

2. Validation & Risk Stratification

troponins (on presentation and after 6 to 12 hours), repeat ECG,
Risk score assessment , Bleeding risk assessment

3. Definitive Treatment

LOW
RISK

- **early discharge**
- **ETT**

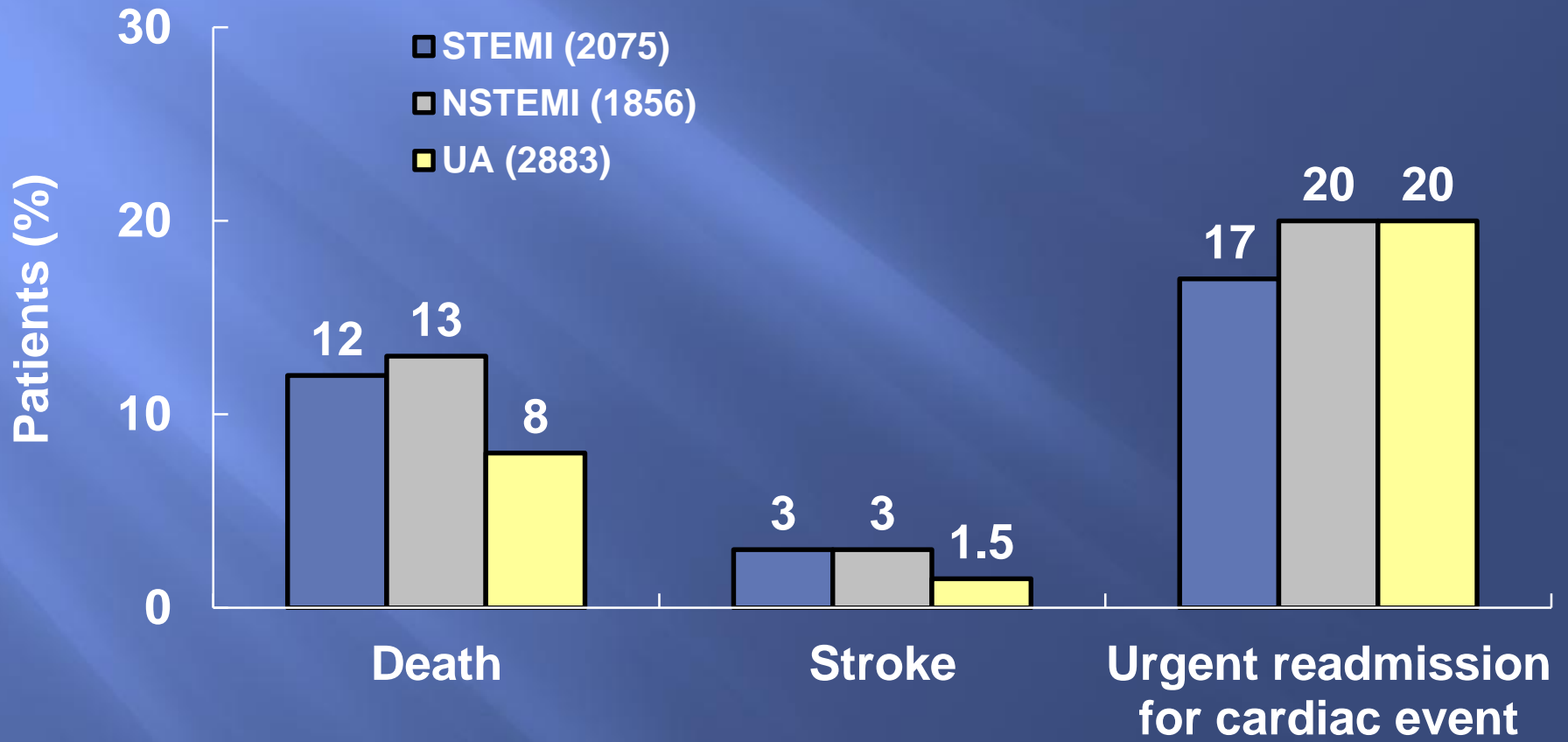
HIGH
RISK

- **angiography**
- **IIB/IIIA inhibitor**

LOW
RISK

- **early discharge?**
- **CT angiography?**

Total Outcomes: 6 Months



So who should do this?

Friday night admission

- ▣ A+E SHO then medical team
- ▣ A+E SHO then cardiology team on Monday
- ▣ Cardiology team direct?

What happens next?

- ▣ Tell LAS that you want your patients at a cardiac centre

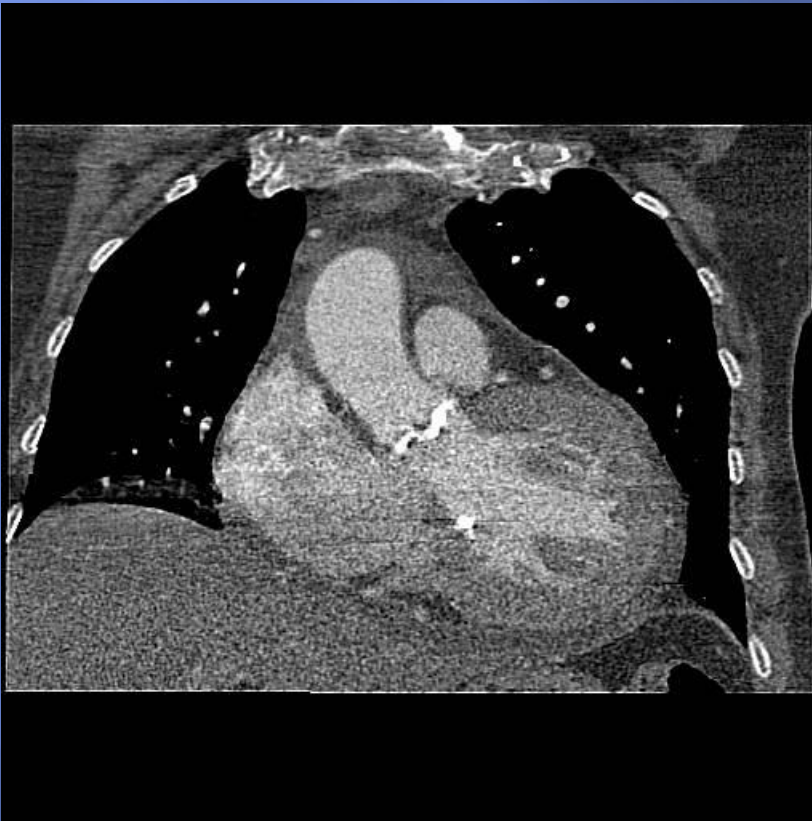
- ▣ Minimum requirement
 - Have a cardiology junior resident-see pt 1st
 - Have a cardiologist able to see pt within 1 hr
 - Always see the cardiologist within 12 hrs
 - Have the cath lab open every weekend

TAVI

A GOOD CHOICE FOR HIGH RISK CASES

Iqbal Malik

Aortic Stenosis



Which patients with AS?

- ▣ 40 yr old with Bicuspid valve as Stenosis
 - Operate
- ▣ 75 year old with diabetes and coronary disease
 - Operate
- ▣ 85 year old with previous CABG
 - TAVI

Which patients with AS?

- ▣ 85 year old with no comorbidity
 - TAVI
- ▣ 95 year old with multiple co morbidity
 - Medical Rx

Partner-B Trial

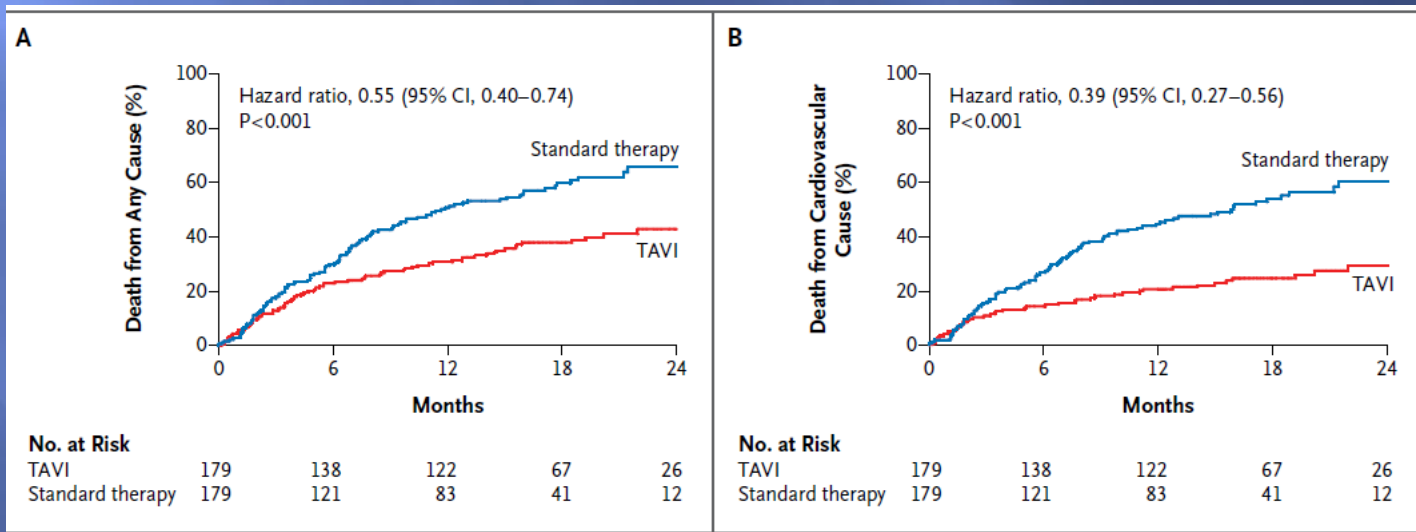
- ▣ NOT suitable for surgery
 - The surgeon though risk too high

- ▣ 3015 patients screened
 - 358 (12%) into RCT TAVI vs medical Rx (inc BAV)

 - Many with “comorbidity”
 - ▣ Porcelain aorta
 - ▣ Lungs
 - ▣ Chest wall problems etc

Partner B trial

Death Rates	30 day	1 year	P
TAVI	5%	2.8%	ns
Conventional medical	30.7%	50.7%	P<0.001



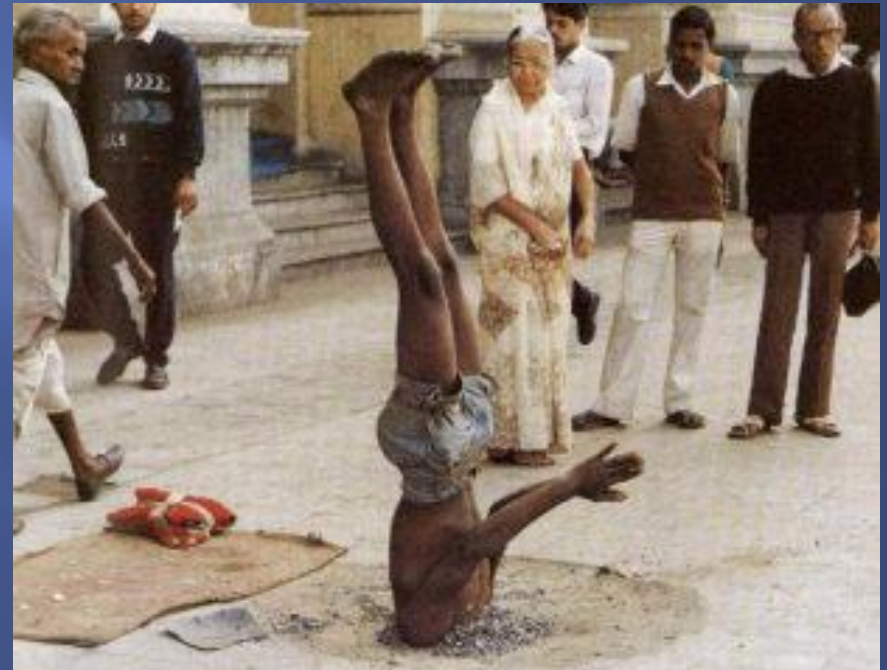
Partner B trial

	1 yr death/ readmission	1 yr CVA	1 yr NYHA I/II
TAVI	42.5%	7.8%	74.8%
Medical	71.6%	3.9%	42%
p	p<0.001	p=0.18	p<0.001

What does it mean?

- ▣ Aortic stenosis in your practice?
- ▣ Don't be nihilistic
 - Refer to a TAVI centre
 - AVR rates go up
 - TAVI via strict MDT
- ▣ Number need to treat

3



TAVI Team



Keys to success

- ▣ Teamwork
- ▣ Strong MDT
- ▣ National data collection
- ▣ ? End of surgery?



TAVI Team



Summary

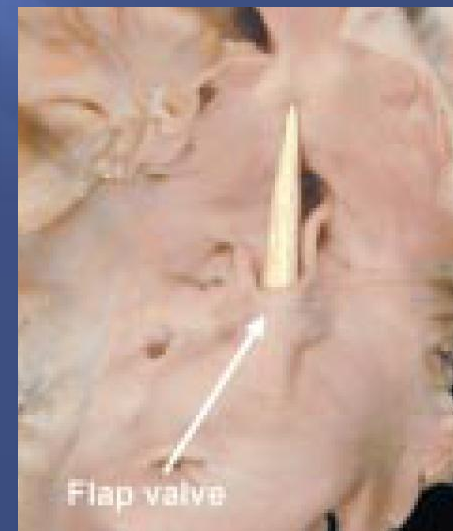
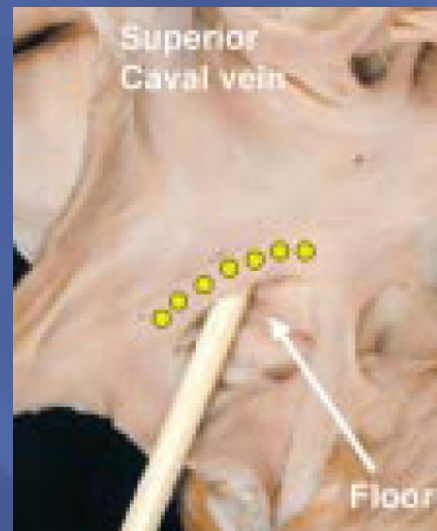
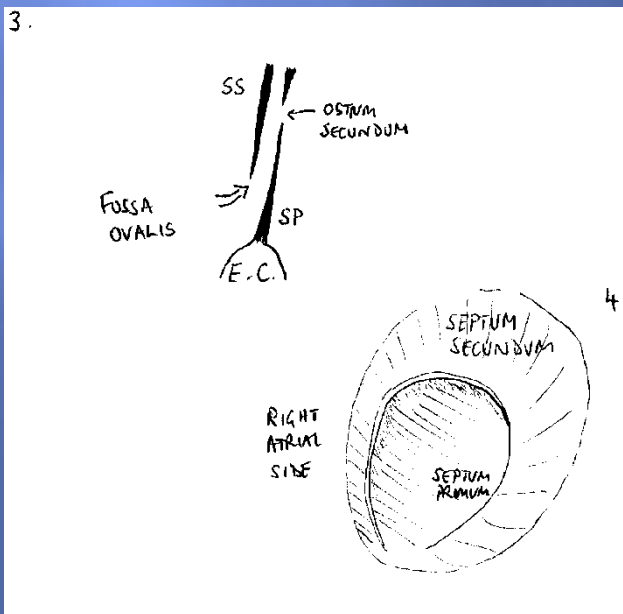
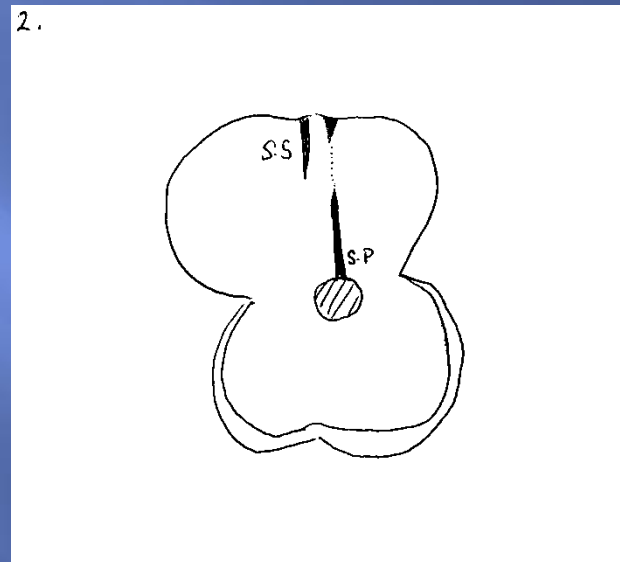
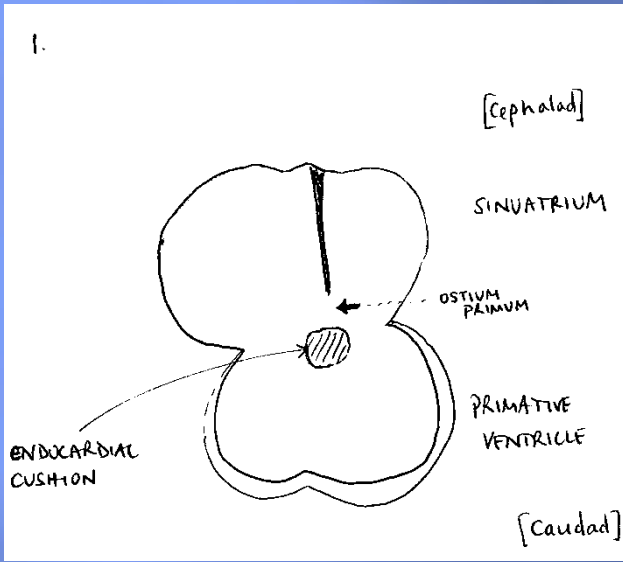
- ▣ TAVI if high risk for surgery
- ▣ Define by scores plus



PFO/ASD RENAL DENERVATION (TREND)

Iqbal Malik

Development of atrial septum



PFO/ASD Clinical Relevance?

- ▣ Embolic ischaemic stroke (cryptogenic)
- ▣ Cerebral/cutaneous decompression disease
- ▣ Migraine with aura

- ▣ Sleep Apnoea
- ▣ High Altitude Pulmonary Odema
- ▣ Chronic Fatigue!!!!!!!!!!!!!!!!!!!!!!

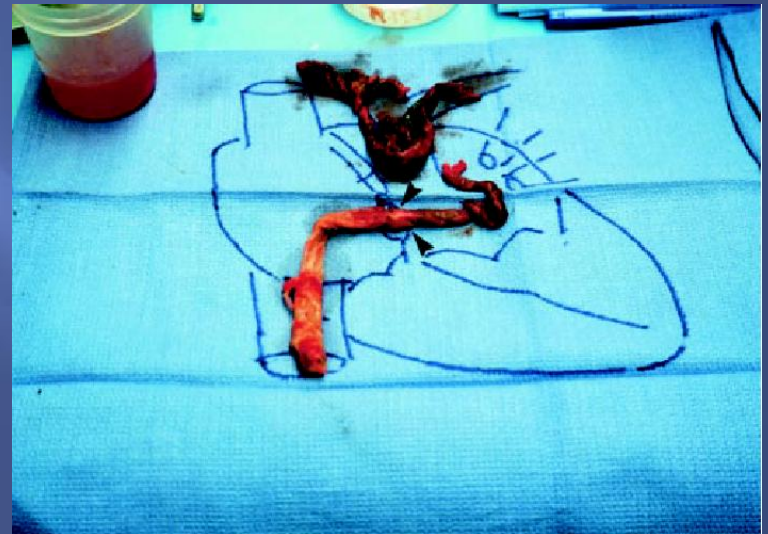
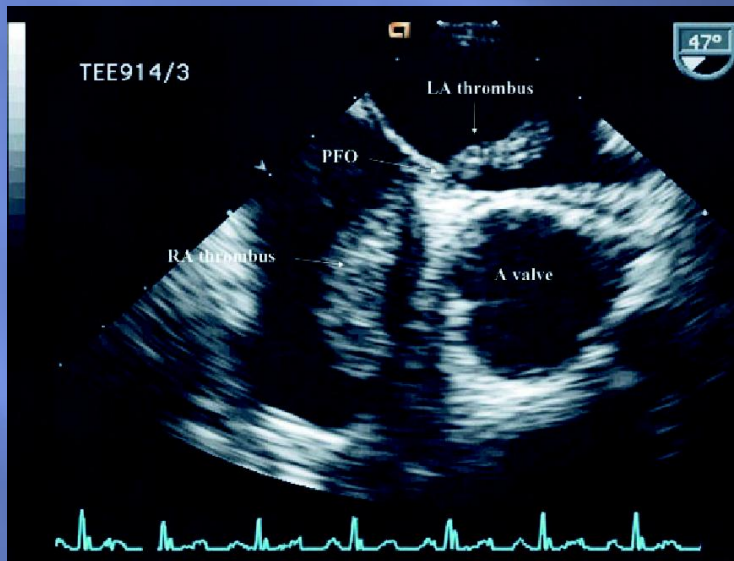
ASD Presentation

- ▣ symptoms beyond the fourth decade including:
 - reduced functional capacity, exertional shortness of breath,
 - Pulmonary HT(<5%)
 - Palpitations (atrial flutter, AF)
 - Systemic embolism -AF

Cardiac Sources of Stroke

- ▣ 20% of neurological events may be cardiac
- ▣ 40% of neurological events are cryptogenic
 - ? Are these often cardiac?
- ▣ Rheumatic heart disease
- ▣ AF
- ▣ Cardiomyopathy (clot)
- ▣ Aortic atheroma
- ▣ Patent Foramen Ovale

Caught in the act...



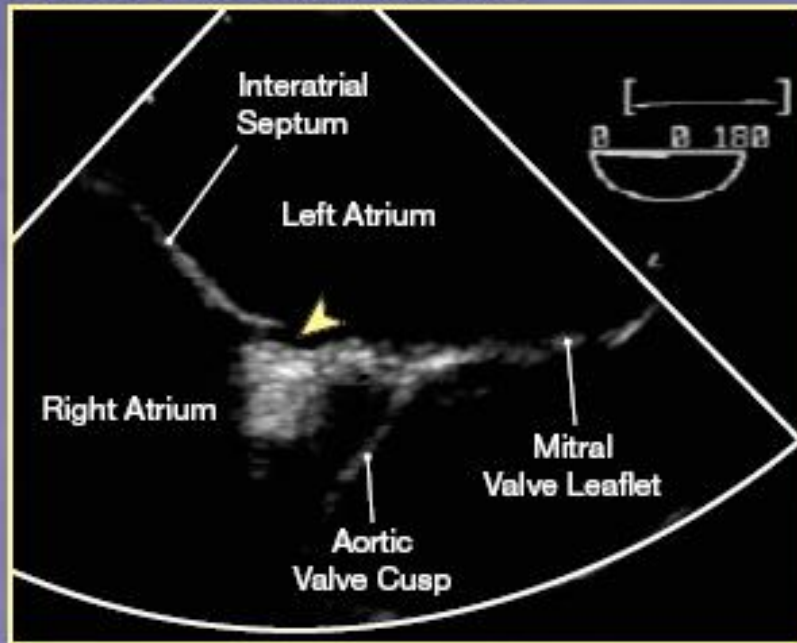
GJ Koullias et al *Circulation*. 2004;109:3056-3057

Diagnosis

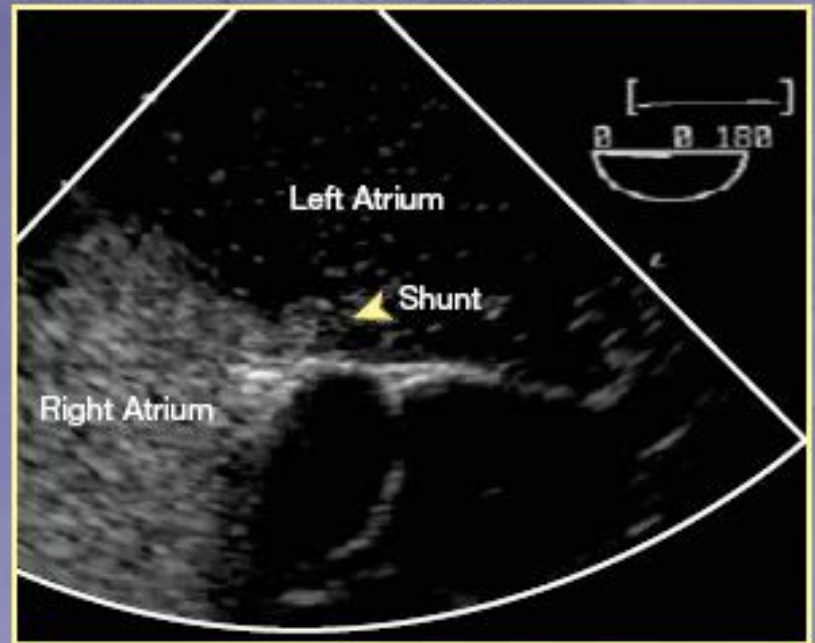
- ▣ TransCranial Doppler 86%
- ▣ Transthoracic Echo and contrast >90%
- ▣ TOE and contrast >90%
- ▣ Two modalities are better than one
- ▣ MRI for ASD

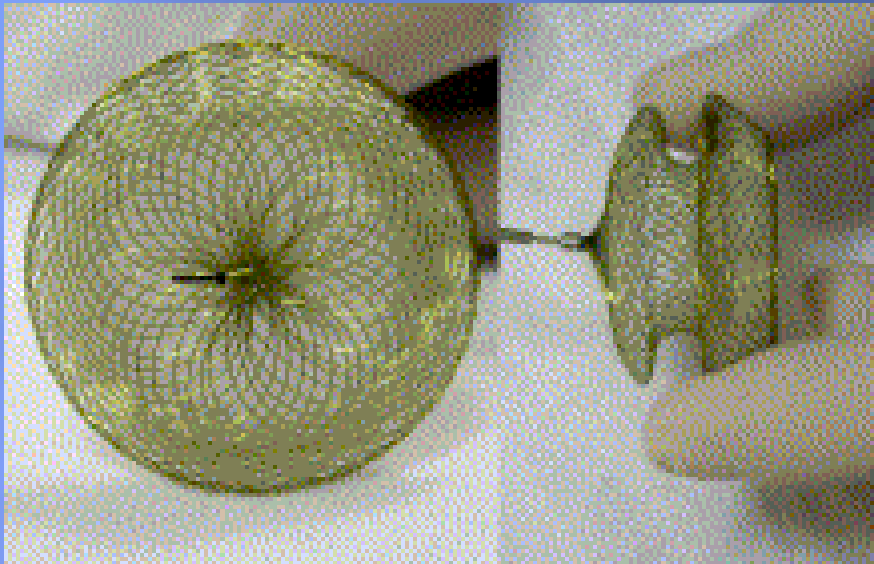
TOE

B Before Echo Contrast Injection

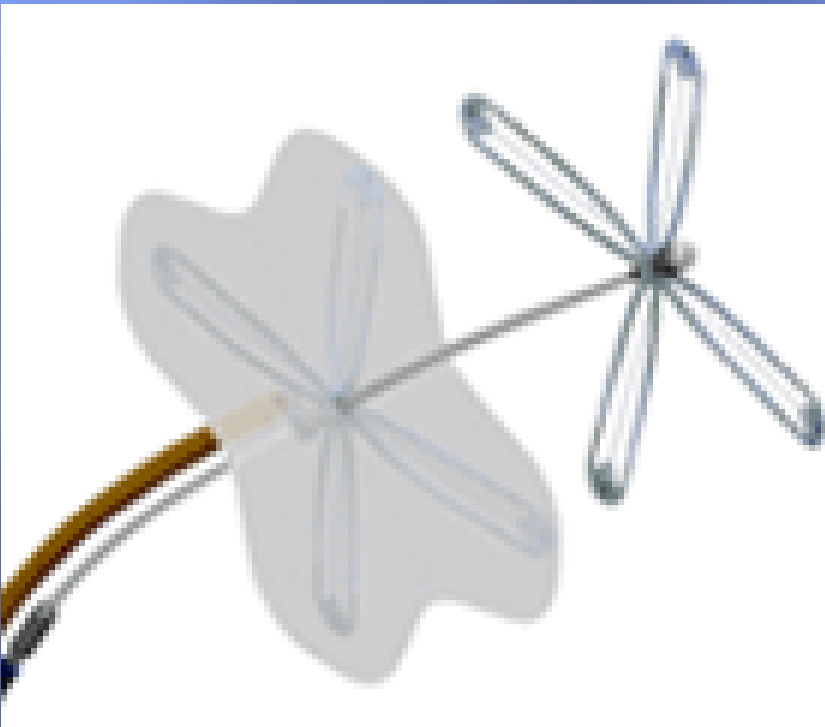


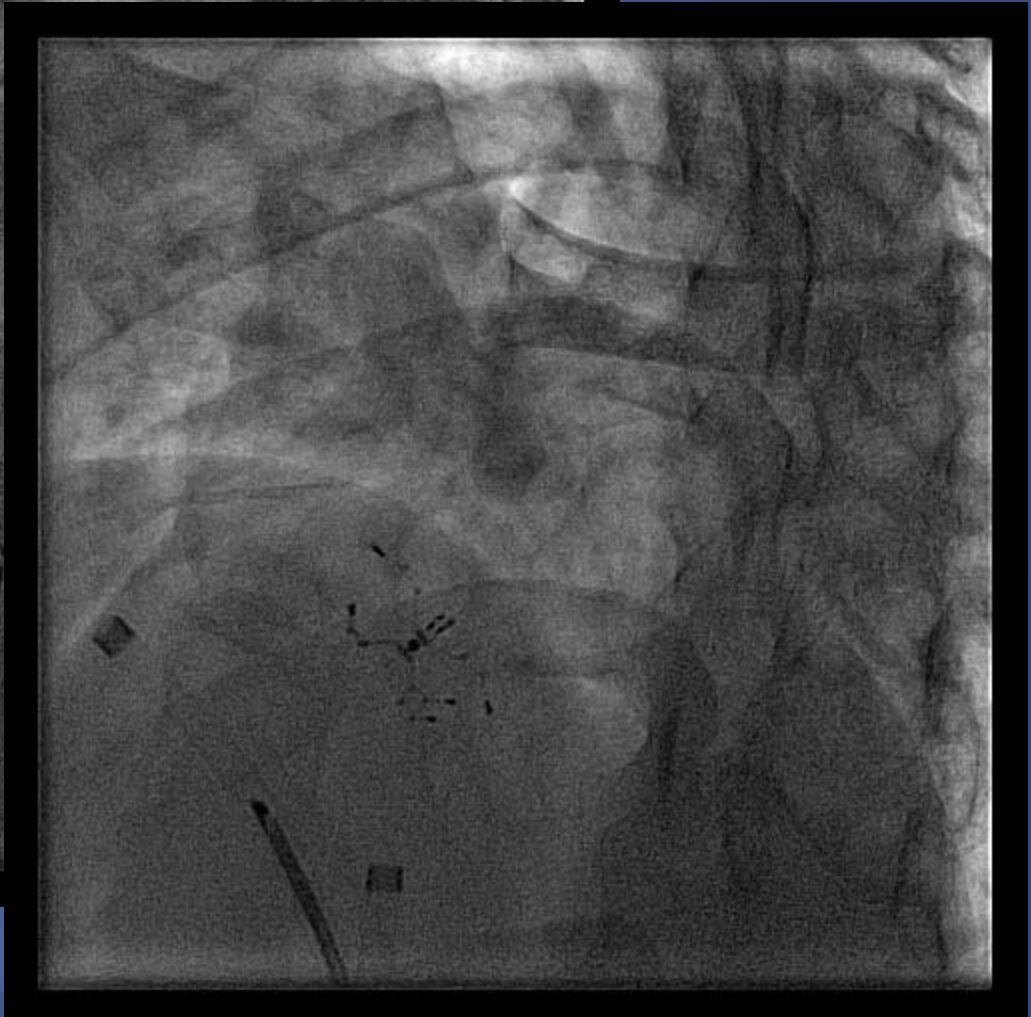
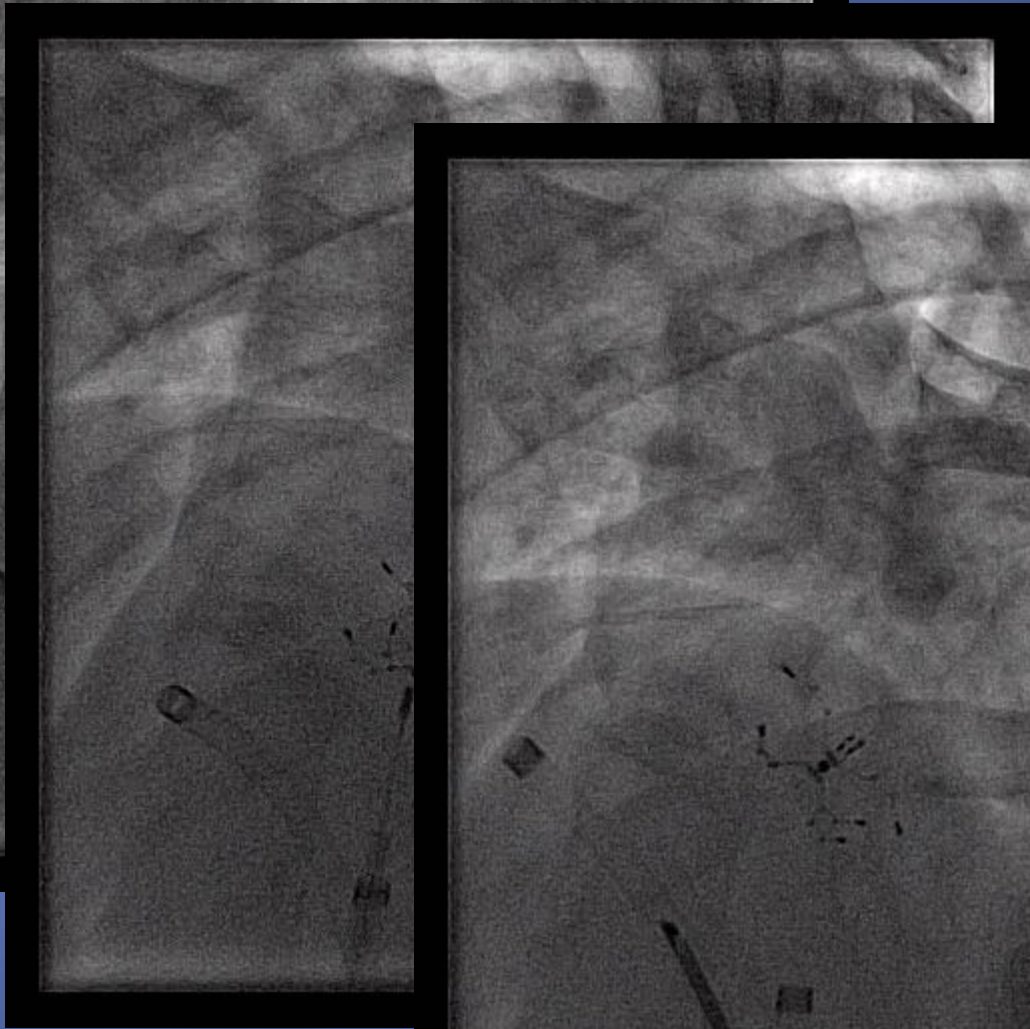
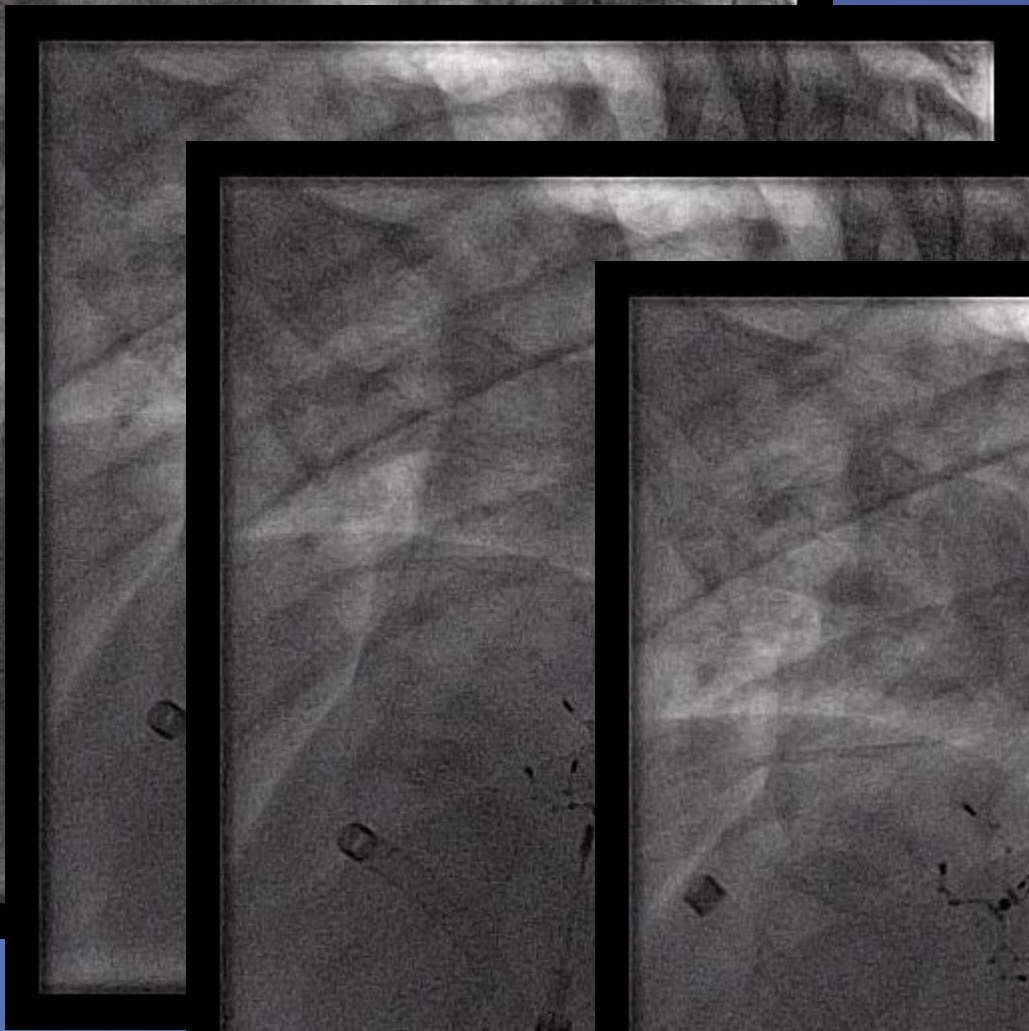
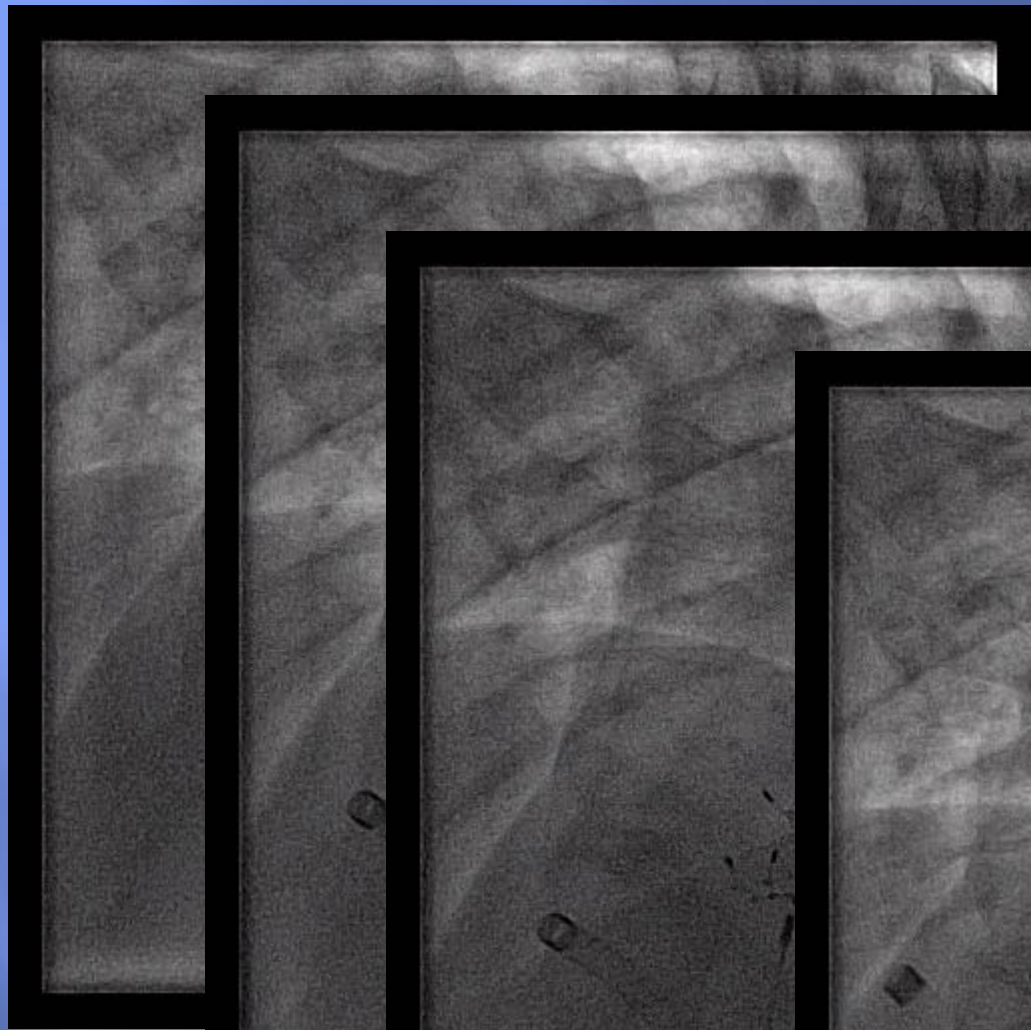
C During Echo Contrast Injection





The Septal Occluder





Migraine?

- ▣ Not 1st line!
- ▣ If failed several medication
 - And
 - Have migraine with aura
- ▣ PRIMA trial

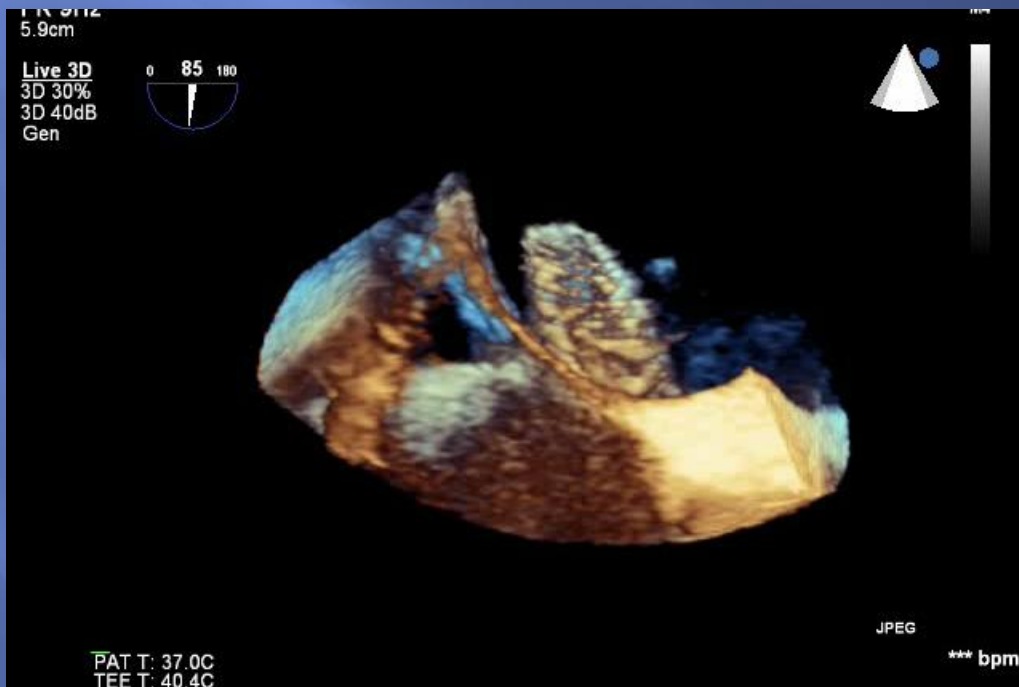
What we need?

- ▣ RESPECT (AGA)
- ▣ PC-Trial (AGA)
- ▣ VINTAGE-PFO??





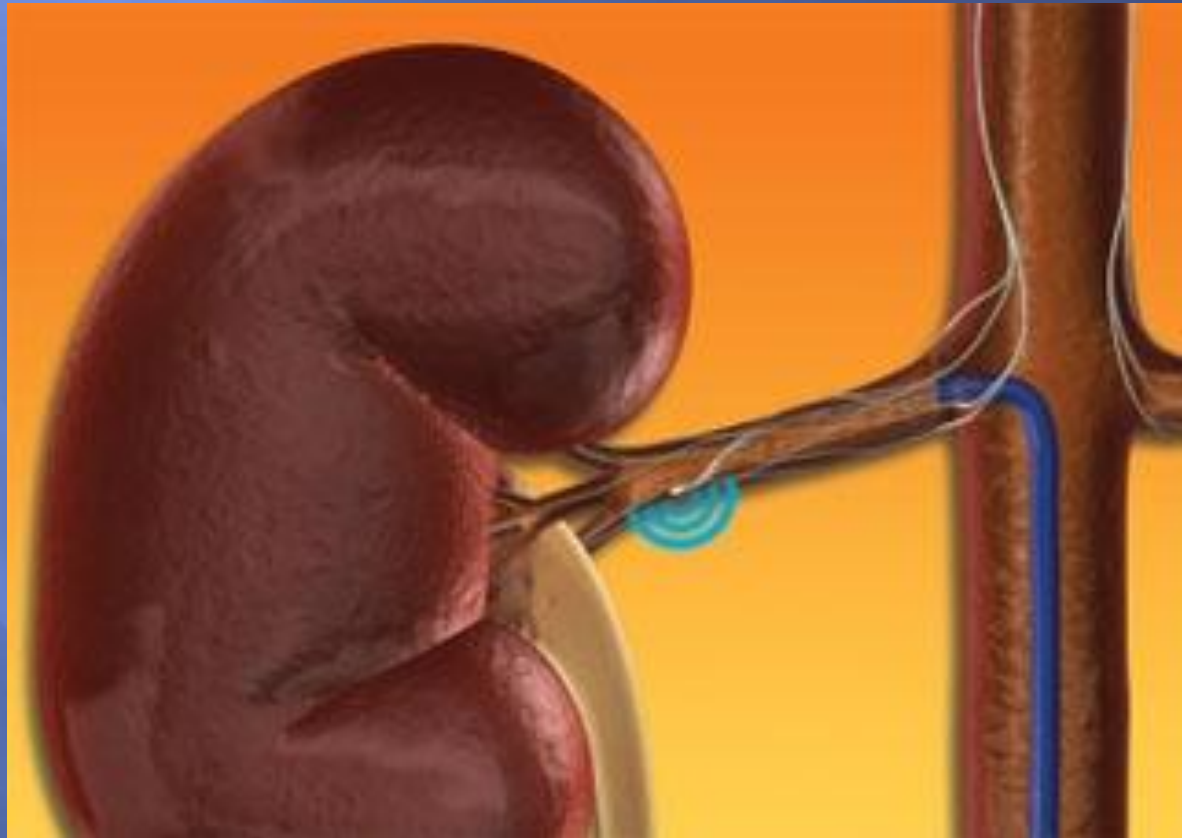




TREND

- ▣ TransCatheter Renal Denervation
- ▣ Resistant HT

TREND



SYMPPLICITY HTN-2 (Renal Denervation in Patients With Uncontrolled Hypertension)

MD Esler (Baker IDI Heart and Diabetes Institute, Melbourne, Australia)
American Heart Association 2010 Scientific Sessions

- Background:

Renal sympathetic efferent and afferent nerves are crucial for the initiation and maintenance of systemic hypertension

Denervation of the renal sympathetic nerve to reduce BP has been attempted, unsuccessfully, by surgical means years ago

- Population and treatment:

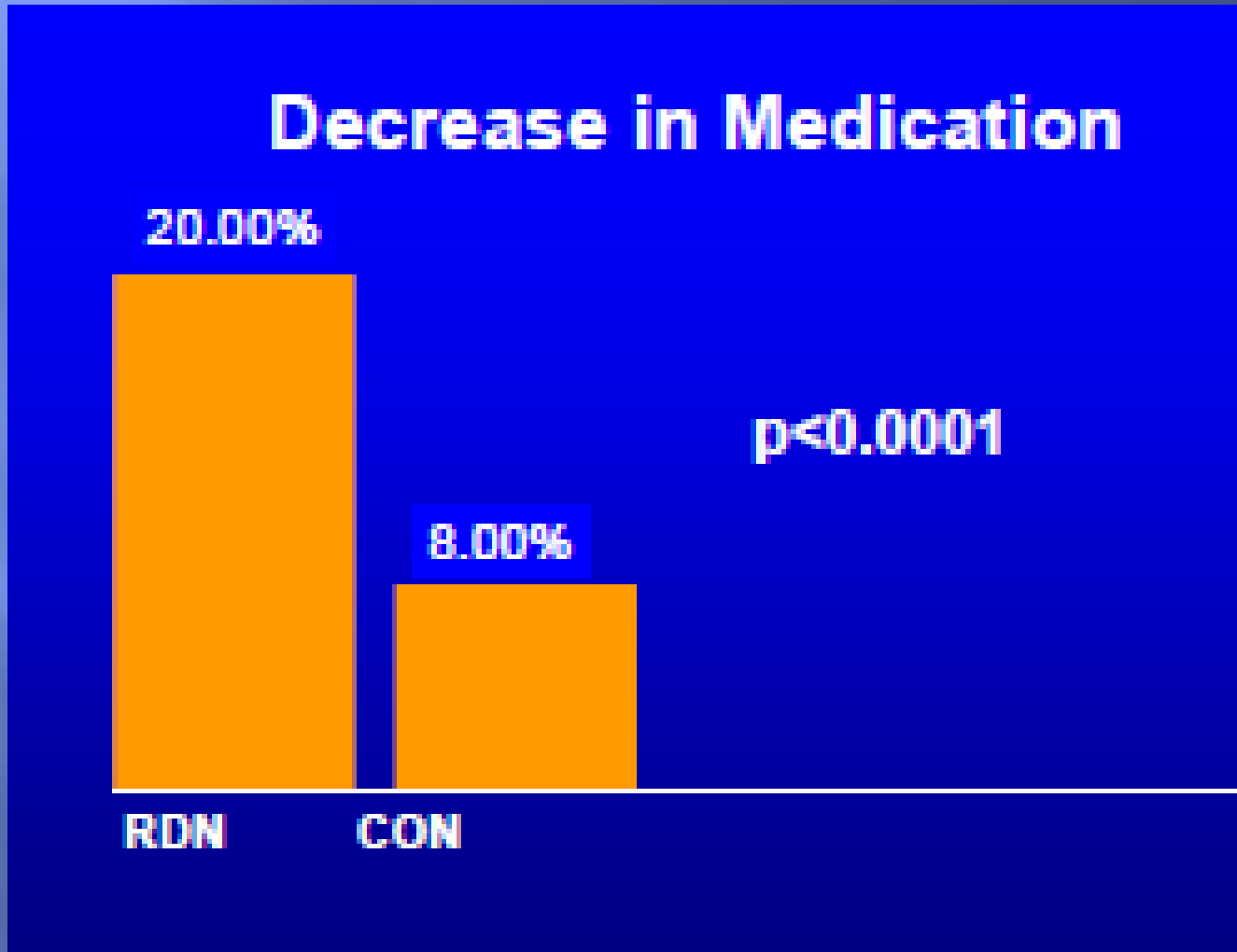
106 patients with resistant hypertension (SBP >160 mm Hg, or >150 mm Hg for those with type 2 diabetes, taking \geq three antihypertensive drugs)

Randomized 1:1 to renal denervation + previous treatment (n=52) or previous treatment alone (n=51)

- Primary outcome:

BP reduction at six months

Results



PFO ASD TREND

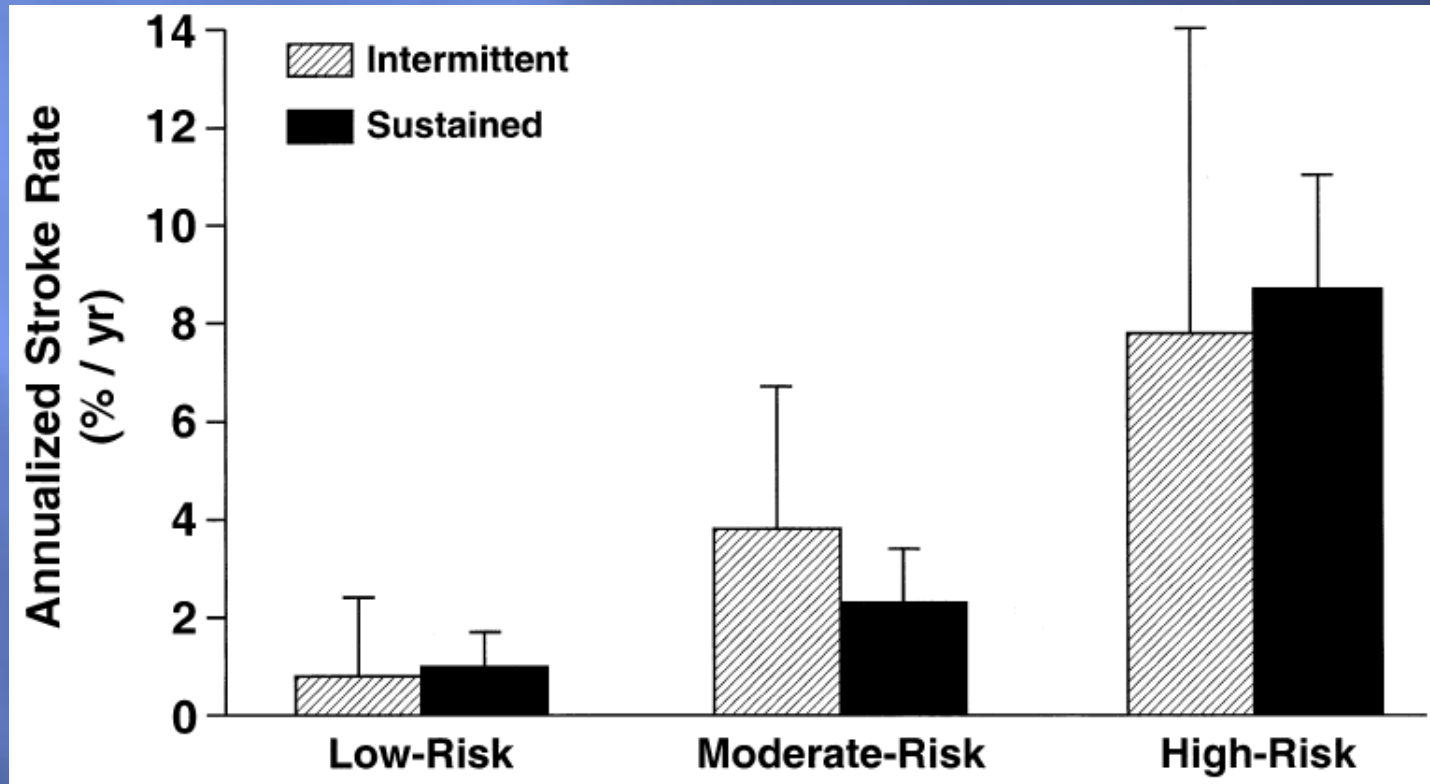
- ▣ Deliver data nationally
- ▣ Confirm good outcomes
- ▣ Publish and do trials
- ▣ Imperial does all this-please refer!!!

ASPIRIN, WARFARIN DAGABITRAN OR LAA

Dr Iqbal Malik

Myth 1-risk of stroke

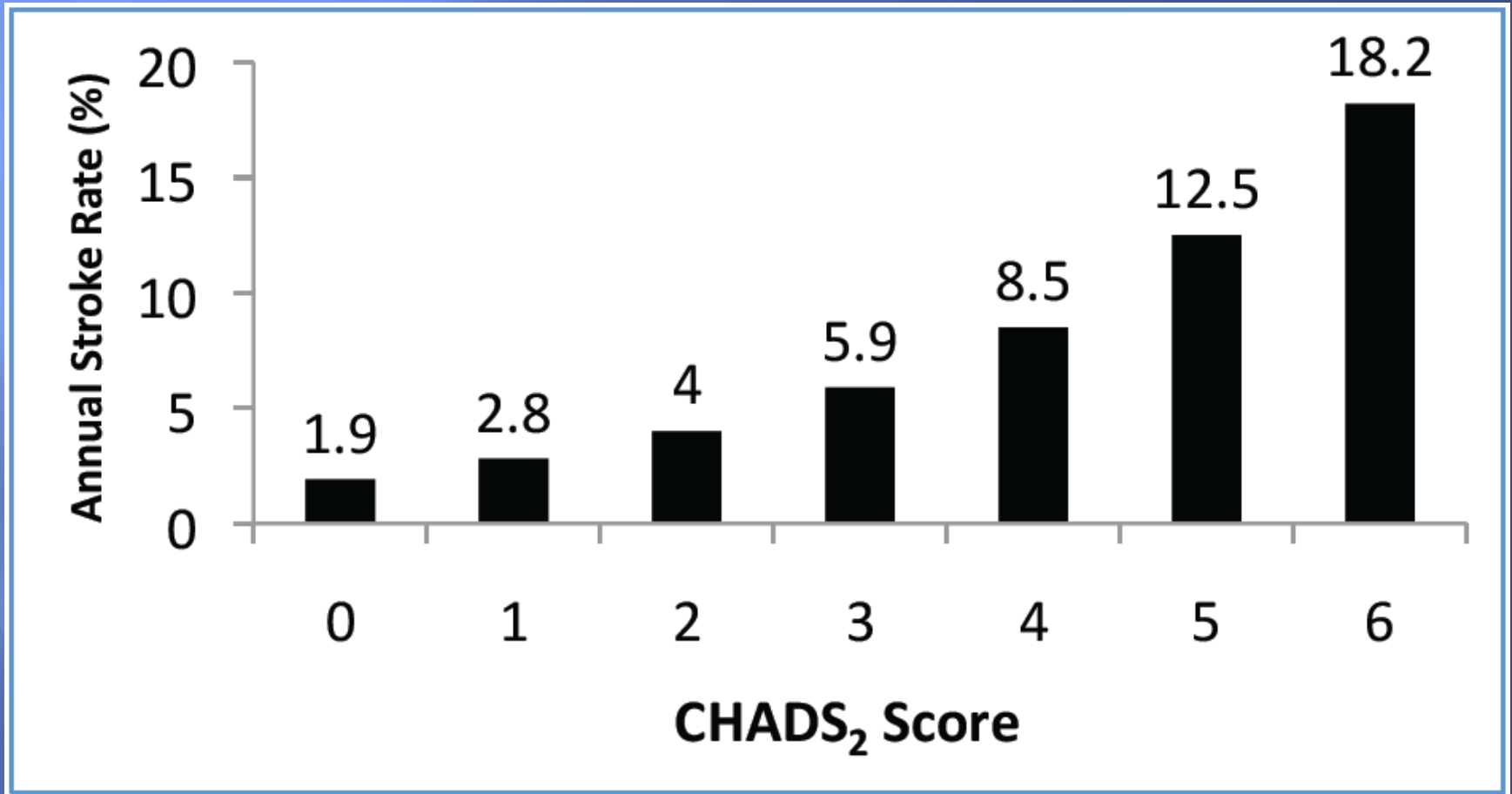
- ▣ PAF NOT less risky than permanent AF



Myth 2-CVA risk not too high

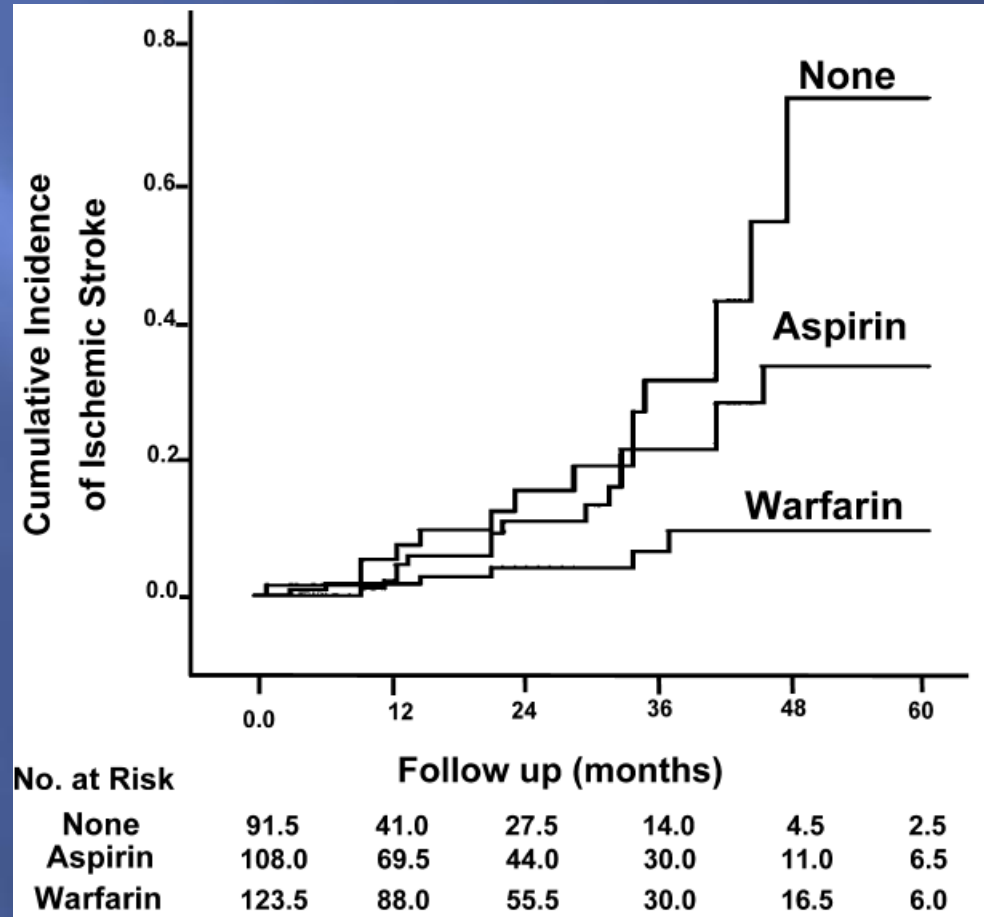
Risk factor	Score
Congestive heart failure/LV dysfunction	1
Hypertension	1
Age ≥ 75	2
Diabetes mellitus	1
Stroke/TIA/thrombo-embolism	2
Vascular disease ^a	1
Age 65–74	1
Sex category (i.e. female sex)	1
Maximum score	9

Myth 2-CVA risk not too high



Myth 3- Aspirin is OK

CHADS-2 =1



Who should get warfarin?

•Aspirin has significant risk of bleeding and low dose should be used

Risk category	CHA ₂ DS ₂ -VASc score	Recommended antithrombotic therapy
One 'major' risk factor or ≥ 2 'clinically relevant non-major' risk factors	≥ 2	OAC ^a
One 'clinically relevant non-major' risk factor	1	Either OAC ^a or aspirin 75–325 mg daily. Preferred: OAC rather than aspirin.
No risk factors	0	Either aspirin 75–325 mg daily or no antithrombotic therapy. Preferred: no antithrombotic therapy rather than aspirin.

What about the bleeding risk for these patients?

Hemorrhagic Complications of Antithrombotic Therapies

	None (n = 110)	Aspirin (n = 124)	Clo/Ticlo (n = 45)	Warfarin (n = 143)
Intra-cranial bleeding (%)	2 (1.8)	1 (0.8)	0 (0.0)	2 (2.1)
Major GI bleeding (%)	0 (0.0)	0 (0.0),	0 (0.0)	1 (0.7)
Minor bleeding (%)	0 (0.0)*	3 (2.4)†	0 (0.0)*	15 (10.5)

*: P < 0.001 vs warfarin, †: P = 0.007 vs warfarin.

Small no of patients

What is the bleed risk?

- Studies now suggest a bleed rate of 0.1-0.6%
 - Lower INR ranges
 - Better control of OAC
 - Better hypertension control

- Caution with score >3

Letter	Clinical characteristic ^a	Points awarded
H	Hypertension	1
A	Abnormal renal and liver function (1 point each)	1 or 2
S	Stroke	1
B	Bleeding	1
L	Labile INRs	1
E	Elderly (e.g. age >65 years)	1
D	Drugs or alcohol (1 point each)	1 or 2
		Maximum 9 points

Drugs

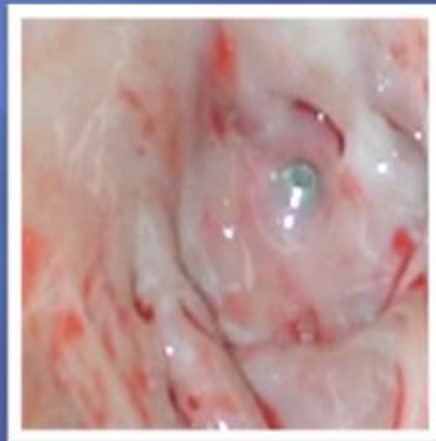
- ▣ Dabigatran *Pradaxa*
 - 110/150 mg bd RELY
 - Direct thrombin inhibitor

- ▣ Rivaroxaban *Xarelto*
 - 20mg od ROCKET AF
 - Direct Xa inhibitor

- ▣ Apixiban *Eliquis*
 - 5 mg bd ARISTOTLE
 - Direct Xa inhibitor

Protect AF - LAA occlusion

- ▣ Increased “front-loaded” risk
- ▣ Lower long term risk
- ▣ 45 days warfarin post implant and then TOE to assess integrity
- ▣ Less inconvenience
- ▣ Occlusion equivalent to warfarin



Summary AF CVA prevention

- ▣ CHA2DS2VAS score
- ▣ Warfarin here to stay
- ▣ Dabigatran role limited by cost
- ▣ LAA closure if:
 - Bleed risk
 - intolerance

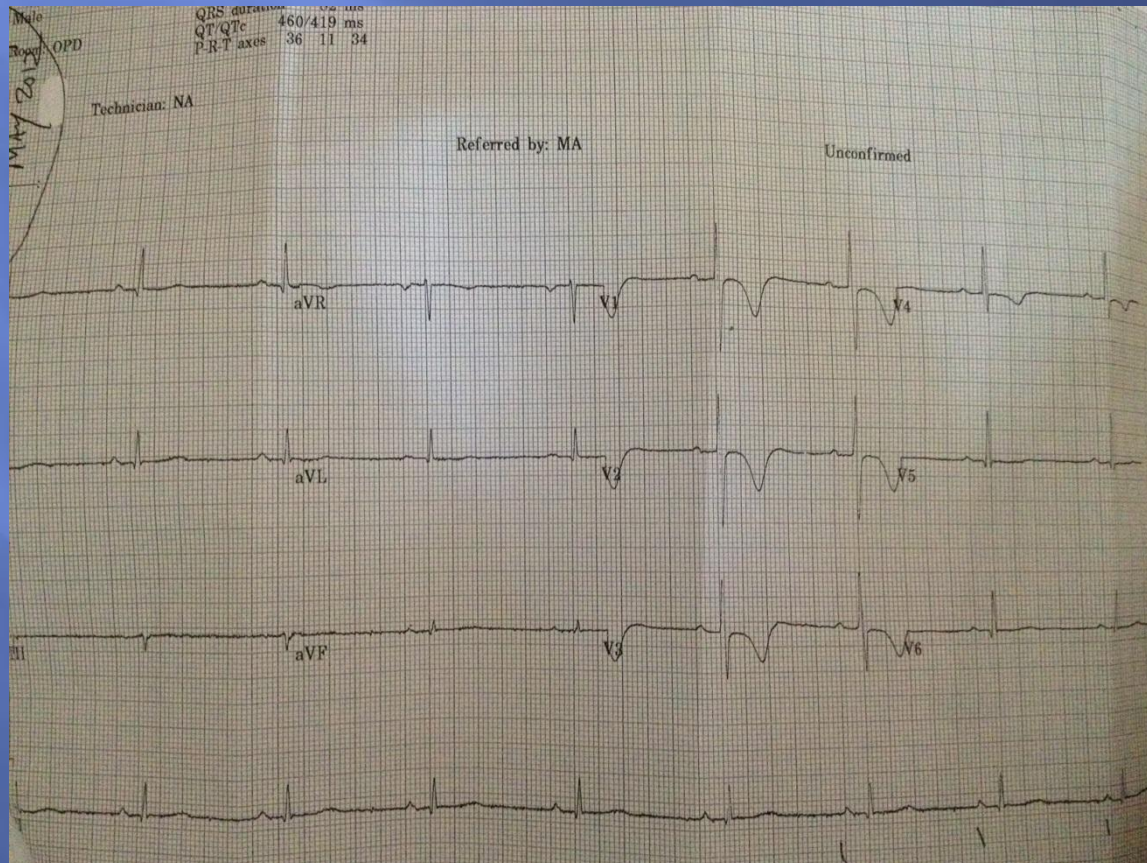
Cases 1

- ▣ 69 Male
- ▣ Hx of exertional dyspnoea

- ▣ Hx IHD
 - MI 1983
 - Normal ECG 2012
 - Angiogram 3VD
 - CABG x3 April 2012
 - ECG May 2012

Cases 1

▣ ECG 2012



Cases 1

- ▣ Action:
 - Nil-normal ECG
 - Refer for anigo-abnormal ECG
 - Other

- ▣ Repeat ECG
- ▣ Echo
- ▣ Reassure

Summary

- ▣ Thanks to all our lecturers
- ▣ Thanks to our sponsors

What have we learnt?

- ▣ IHD
 - 2 million sufferers
 - Medical therapy is good for most
 - ▣ ranolazine
 - ▣ ivabradine
- ▣ ACS-STEMI
 - ▣ PPCI is best
- ▣ Chest pain
 - RACPC 020 3312 3732

AF

- ▣ CHADS2VASC2 score
 - 0: medical rx with nothing?
 - 1: warfarin or nothing
 - 2 or more: warafarin

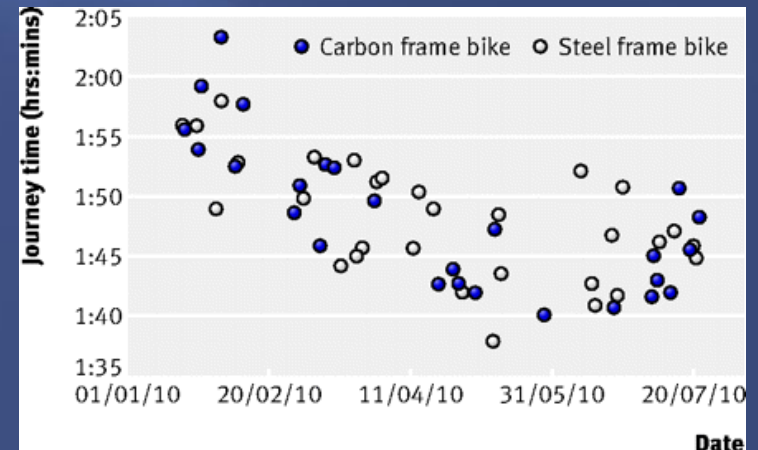
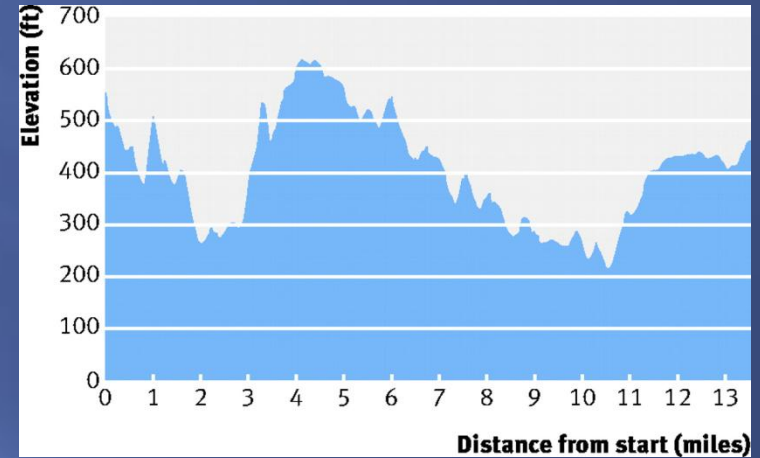
- ▣ Elderly will do well on warfarin
- ▣ Warfarin is cost effective if:
 - CHADS2>1
 - Time with good treatment >65%

Unanswered questions

- ▣ Who to give a EBCT to?
- ▣ is there any reason not to take all ACS to a Heart Attack Centre?
- ▣ Who should get a LAA closure device?

Topics not covered

▣ Exercise



Topics not covered

▣ Smoking



Thanks for coming!