HeFSSA Practitioners Program 2014

- 08:00 – 08:30 Registration
- 08:30 – 09:15 Clinical Case Presentation 1
- 09:15 – 10:00 Clinical Case Presentation 2
- 10:00 – 10:30 Tea Break
- 10:30 – 11:15 Clinical Case Presentation 3
- 11:15 – 11:45 Clinical Case Presentation 4
- 11:45 – 12:00 Questionnaire
- 12:00 – 14:00 Lunch

Heart Failure Society of South Africa [HeFSSA]

- Elderly lady
- Intermittent chest pain over few days
- Asssociated
  - Shortness of breath
  - Fatigue
- Syncope x 1
- Presents to Casualty 00h30

- Past history
  - Hypertension
  - Dyslipidaemia
    - Refused statins – too old

- Returned from Australia 36 hours ago

CHEST PAIN

- **Coronary artery disease**
- Pneumonia
- Pulmonary embolus
- Aortic dissection
- Pericarditis
- Reflux
- Ulcer
- Costochondritis
- Intercostal neuralgia
- Muscle strain
- Fracture
- Bony pathology – met
- Could this be stress, Dr?

- Intermittent chest pain over a few days
  - Localized or diffuse
  - Duration
  - Central or lateral
  - Burning, sharp, crushing
  - Aggravated by movement or breathing
  - Aggravated by exertion
  - Rest or on exertion
  - Supine or recumbent
  - Cough – productive (of what)

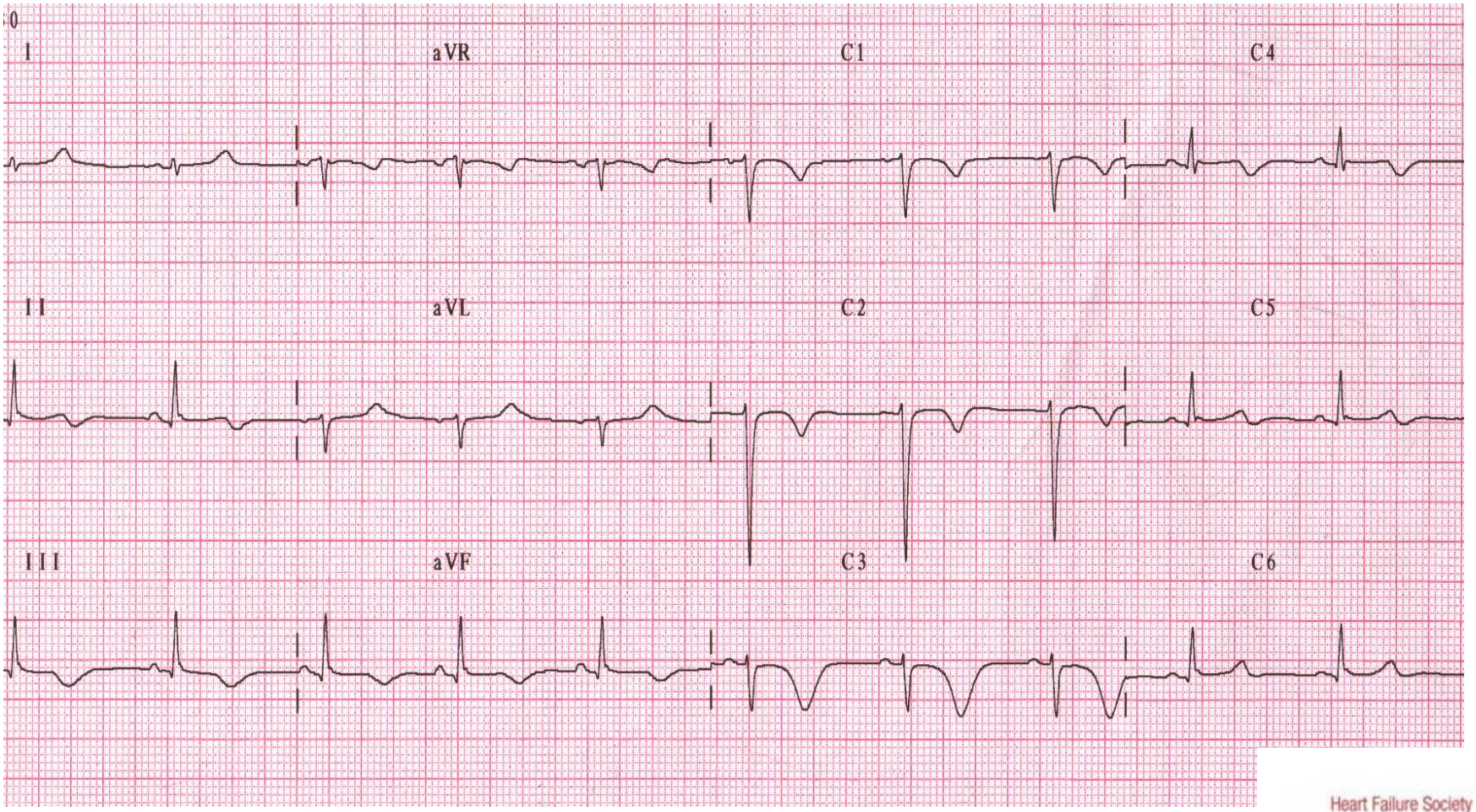
CHEST PAIN

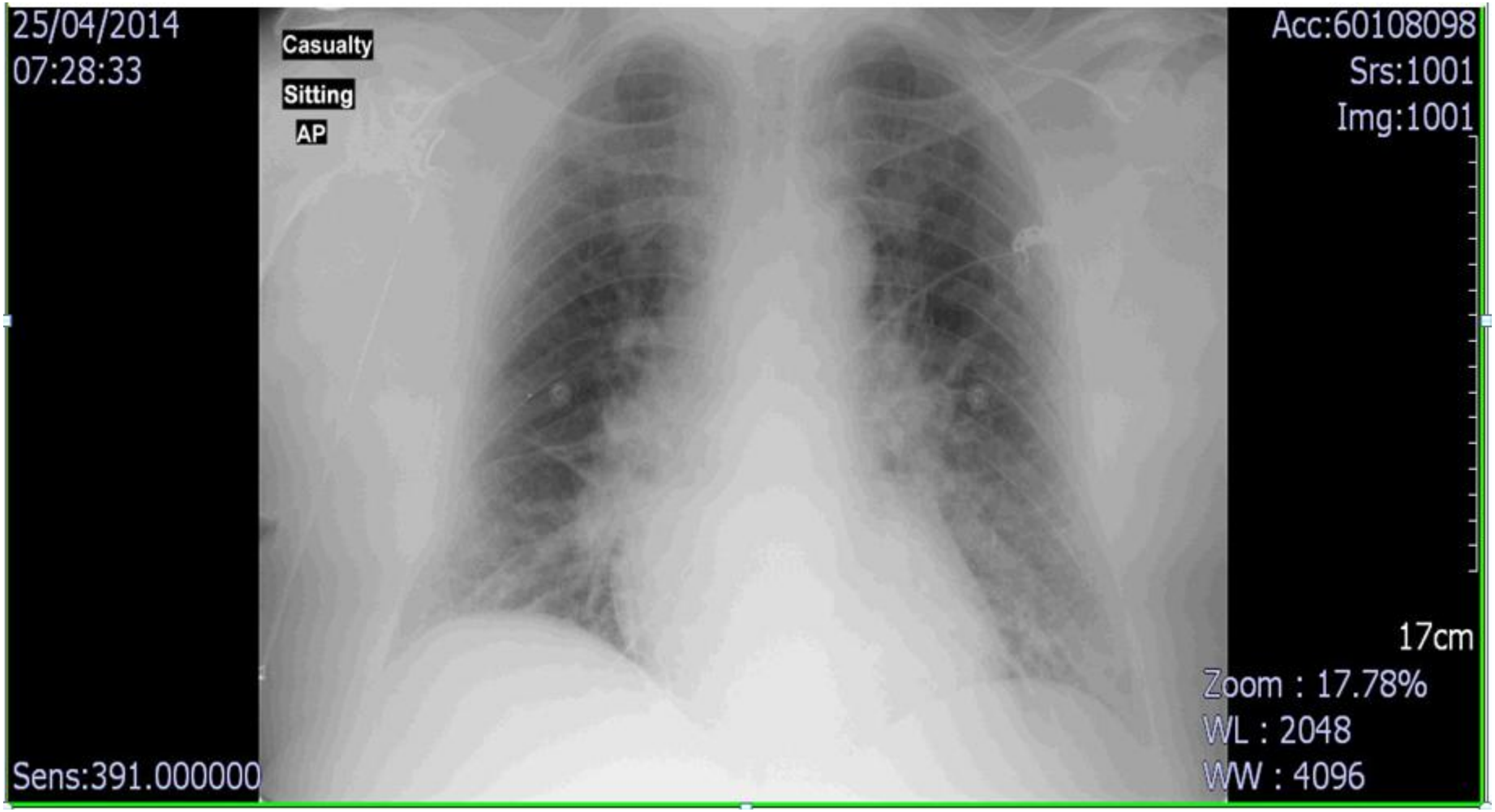
- Examination
  - BP - high or low or normal
  - Pulse – fast, slow, normal, weak, absent
  - Respiratory rate
  - Temperature
  - Crackles
  - Bronchial breathing
  - Localized tenderness

CHEST PAIN

- Investigations
  - ECG
  - CXR
  - Bloods
    - FBC
    - U + E + Cr (always do!)
    - D Dimer
    - Troponin / enzymes
  - (Echocardiography, Spiral CT, V/Q scan, CT brain)

Coronary? Pulm embolus? Myopericarditis? Dissection?





Not our lady, but a man with shortness of breath, similar circumstances

RESULTS

- ECG – normal
- CXR – pulm congestion
- Hb 12.3
- WCC 12.2

- Troponin T 12
- NTProBNP 1980

- D Dimer 0.64
- ECHO EF 54%

- Rules out CAD?
- Acute Heart Failure?
- Normal
- Pneumonia? CAD? PE? Dissection? Pericarditis?
- Rules out CAD?
- Acute Heart Failure? PE? Pneumonia?
- Confirms PE?
- Excludes Heart Failure?

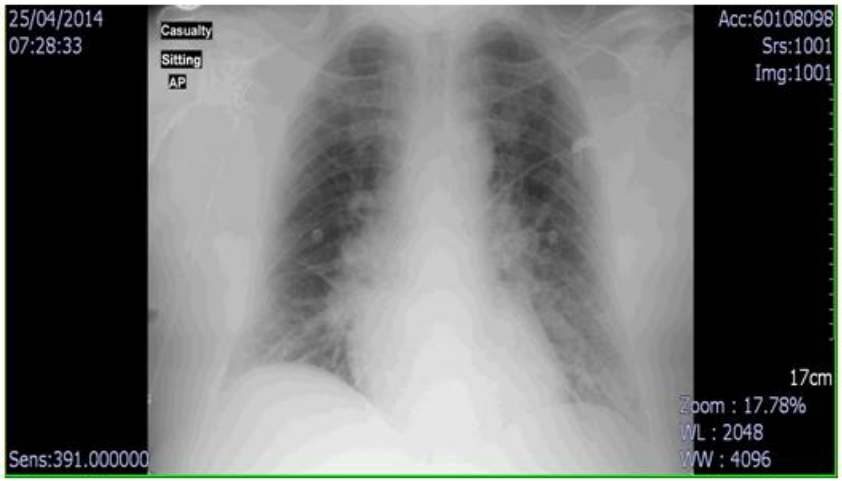
NTProBNP

- Chronic setting < 125 pg/ml excludes HF*
- Acute setting < 300 pg/ml excludes HF*
- Produced by left AND right ventricle
- Rises rapidly
- “Diagnostic” of Heart Failure
- PE, AMI, Pneumonia, Aortic stensosis

*Mpe, MT et al. SAMJ 2013;9(Suppl 2):661-7;
*McMurray JJV, et al. Eur Heart J 2012;33(14):1787-1847

ACUTE HEART FAILURE?

- ECG – normal
- CXR – pulm congestion
- Hb 12.3
- WCC 12.2



- Troponin T 12
- NTProBNP 1980

- D Dimer 0.64
- ECHO EF 54%

ACUTE HEART FAILURE

12.1 Initial assessment and monitoring of patients

Three parallel assessments must be made during the initial evaluation of the patient, aided by the investigations listed in *Figure 4*.

(i) Does the patient have HF or is there an alternative cause for their symptoms and signs (e.g. chronic lung disease, anaemia, kidney failure, or pulmonary embolism)?

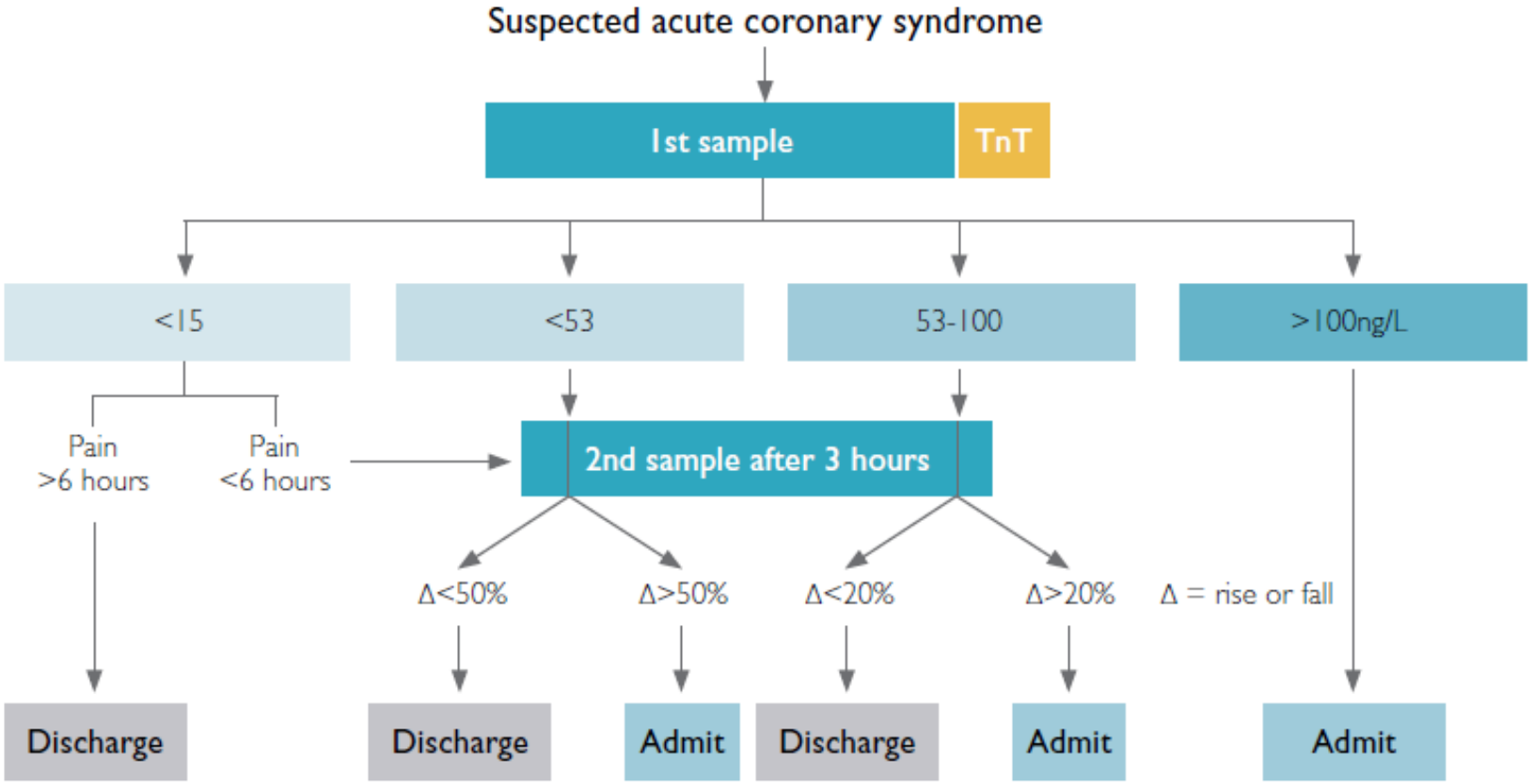
(ii) If the patient does have HF, is there a precipitant and does it require immediate treatment or correction (e.g. an arrhythmia or acute coronary syndrome)?

(iii) Is the patient's condition immediately life-threatening because of hypoxaemia or hypotension leading to underperfusion of the vital organs (heart, kidneys, and brain)?

ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure. McMurray JJV, et al. Eur Heart J 2012;33(14):1787-1847

TROPONIN T

- "Specific" for cardiac muscle injury
- Rises fairly early – within 4 – 6 hours
  (not as early as NTProBNP)
- Rises earlier than CK, CK-MB
- More sensitive than CK, CK-MB



Jardine, RM et al. SA Heart 2012;9:210-215

SA Heart Association

Task force

R.M. Jardine, FCP(SA)*; A.J. Dalby, FCP(SA), FACC, FESC#; E.Q. Klug, MMed FCP(SA)†; W.H. Vermaak, MMed(Chem Path)‡; H.D. White, DSc, FRACP, FACC, FESC, FAHA, FHKCC(Hon), FCS(ANZ), FRSNZ§; J.C.W. Badenhorst, MMed(Int)*; L.B. Osrin MMed(Int)¬; M. du Plessis, MMed(Chem Path), FCPath(SA)‡; T.J. Naicker, MFGP FCPath(SA), MMed(Chem Path)^; P.D. Rambau FFPath(SA)/; E.S. Hitchcock MMed(Chem Path)°

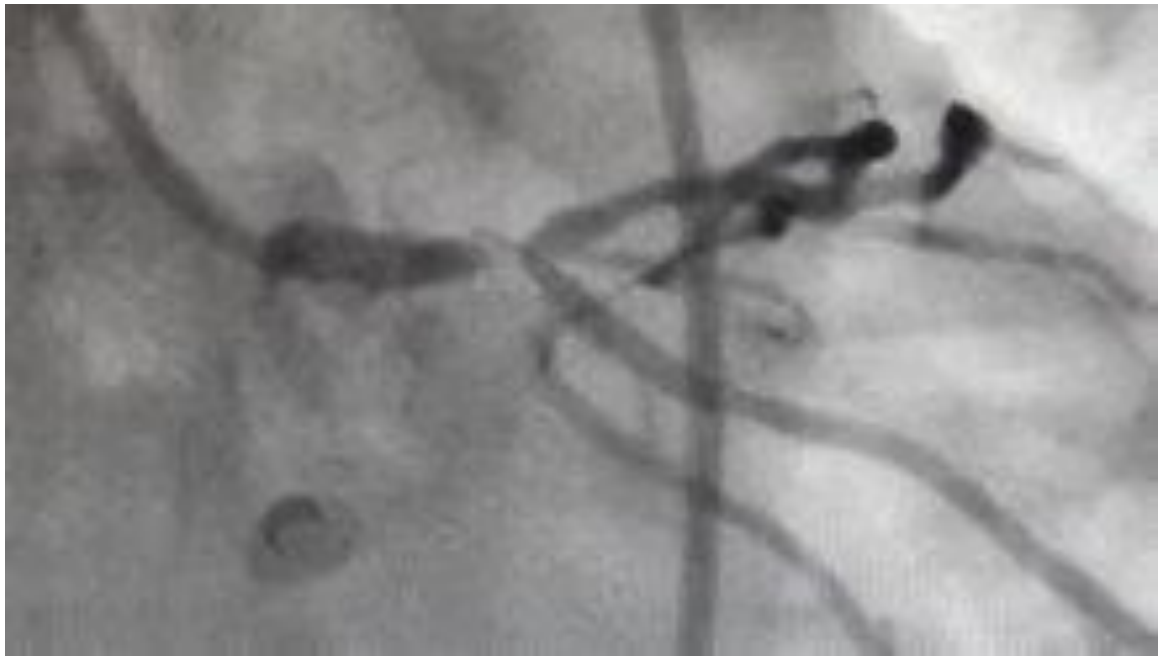
Heart Failure Society of South Africa [HeFSSA]

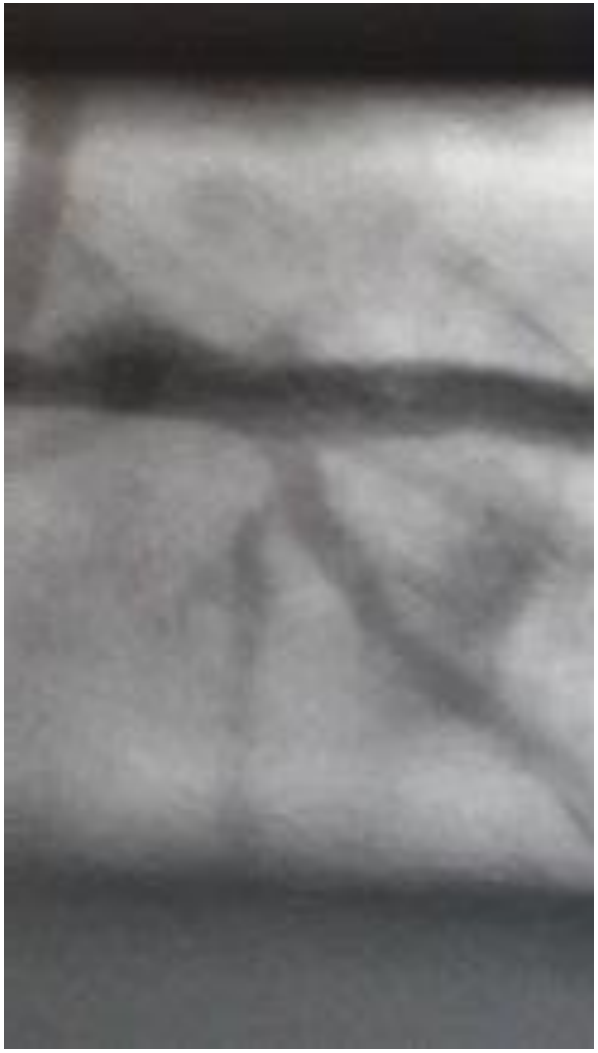
TROPONIN T

- Repeated 6 hours later
  - 288 ng/L
- Home and dry?
  - Acute coronary syndrome precipitating heart failure?

CARDIAC TROPONIN ELEVATION (other than ACS)

Acute	Acute		Chronic
Ischaemic mechanism	**Other mechanisms**	Myo-pericarditis	Stable atherosclerotic coronary artery disease
Acute heart failure	Cardiac contusion	Endocarditis	Other coronary disease e.g. SLE, scleroderma, Kawasaki's disease, transplant vasculopathy
Pulmonary embolism	Procedural trauma:	Stroke	Atrial fibrillation
Tachy-arrhythmias	Cardiac surgery	Tako-tsubo cardiomyopathy	Chronic heart failure
Brady-arrhythmias	Uncomplicated PCI	Rhabdomyolysis	Chronic renal failure
Accelerated hypertension	ASD closure	COPD exacerbation	Hypertension/ LV hypertrophy
Hypotension / shock	Endomyocardial biopsy	Acute renal failure	Pulmonary arterial hypertension
Sepsis	Pacing	Burns >30%	Aortic valve disease
ARDS	ICD shocks	Snake venoms	Hypertrophic cardiomyopathy
Aortic dissection	RF/cryo ablation	Chemotherapy: Adriamycin, 5-fluoro-uracil, herceptin	Infiltration: amyloidosis, haemochromatosis, sarcoidosis
Carbon monoxide poisoning	External cardiac massage	Sympathomimetic drugs	Peri-partum cardiomyopathy
	External cardioversion / defibrillation	Strenuous exertion	Hypothyroidism
		After non-cardiac surgery	Diabetes

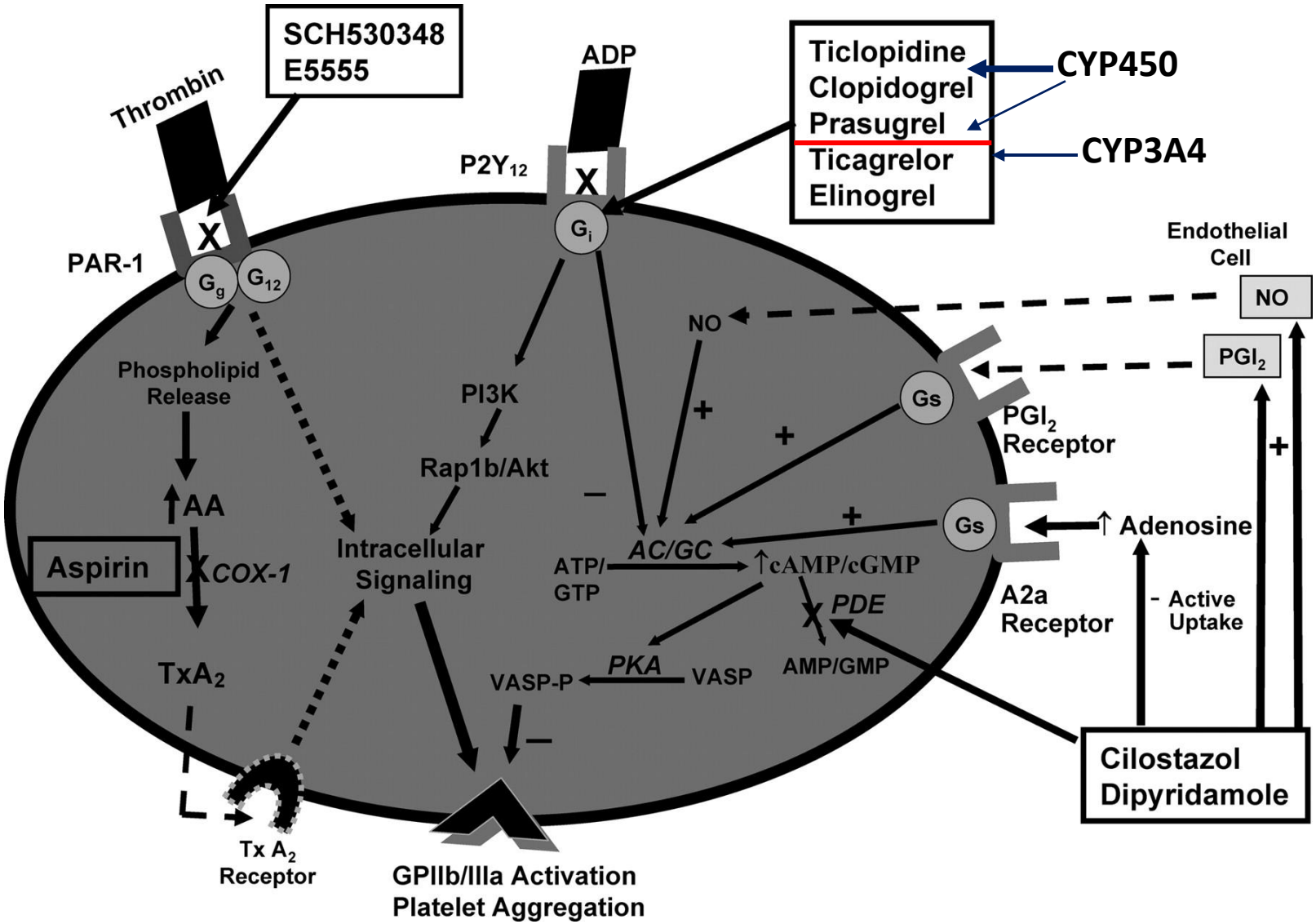




Advised CABG
Elderly lady – asked if “there was anything else”

DUAL ANTIPLATELET THERAPY

- DAPT
  - Dispirin + Clopidogrel
    - Very effective
      - Platelet resistance
    - Prodrug
      - 2 steps of activation
    - Relatively quick onset of action
    - Prolonged duration of action
      - 5 days
    - Delay surgery
    - Operate with higher risk of bleeding

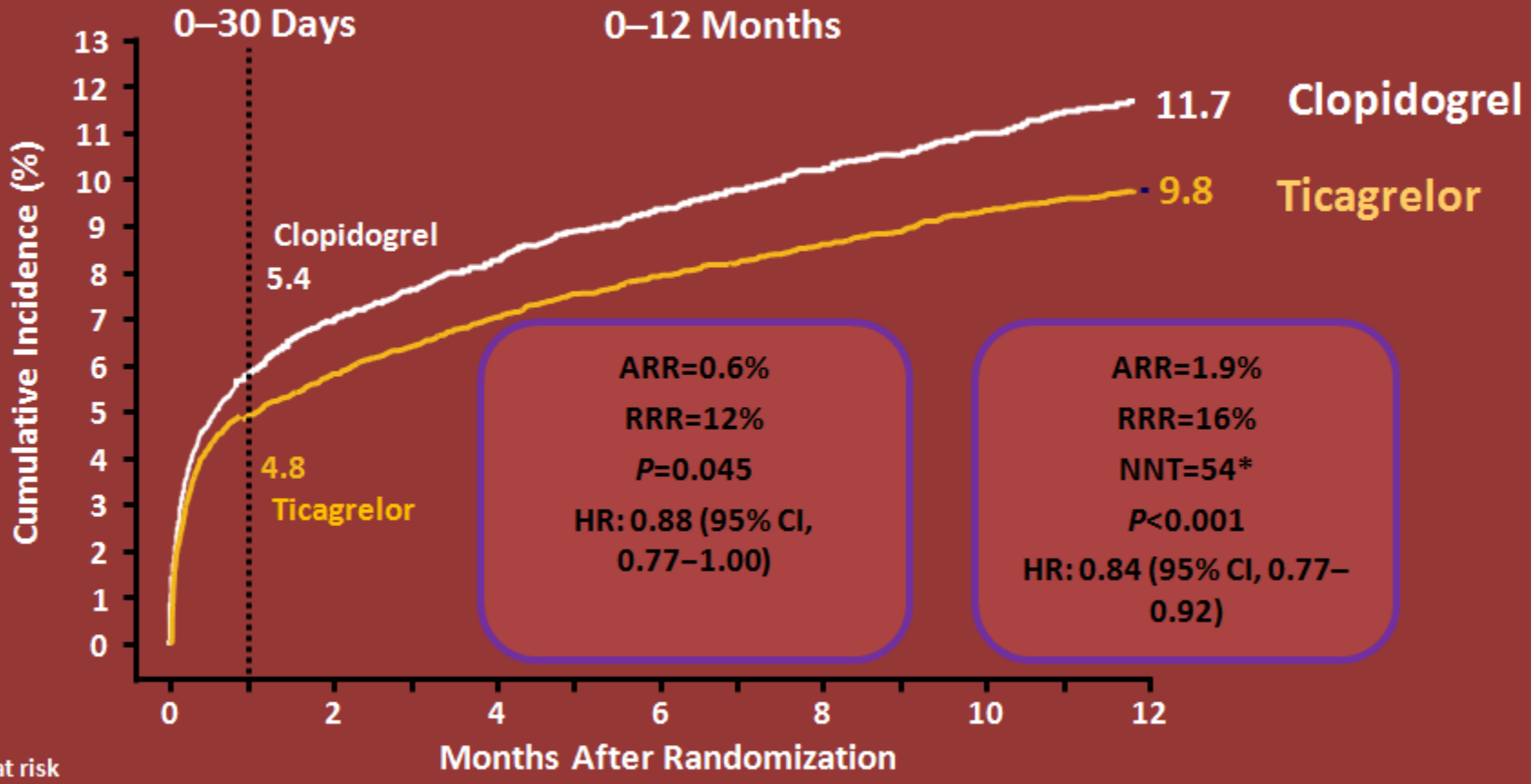


Gurbel P A , Tantry U S Circulation 2010;121:569-583

TICAGRELOR

- Non-thienodypiridine drug
- $P2Y_{12}$ inhibitor
- Active
- Reversible
- Faster onset of action
- Shorter duration of action
- bd dosage (90mg bd)
- Dyspnoea, pauses / bradycardia

PLATO: Primary Efficacy Endpoint (Composite of CV Death, MI, or Stroke)

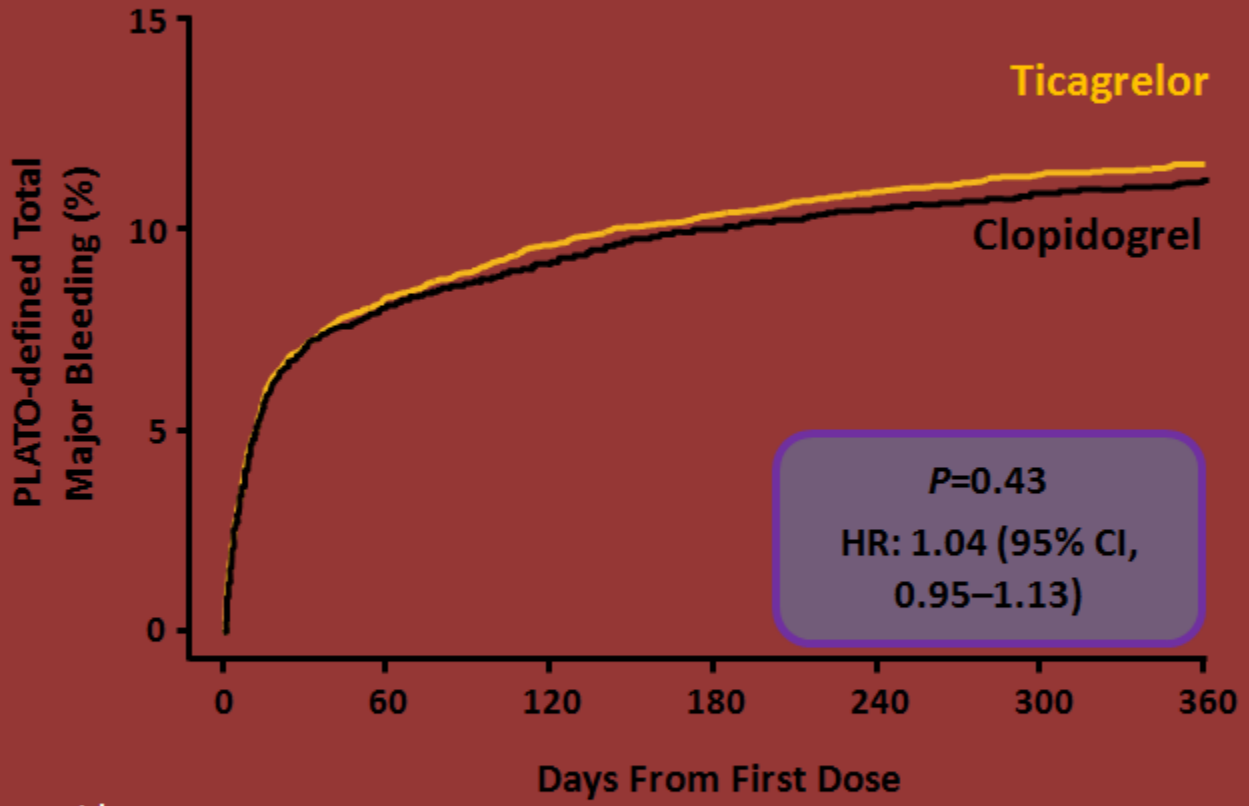


No. at risk							
Ticagrelor	9,333	8,628	8,460	8,219	6,743	5,161	4,147
Clopidogrel	9,291	8,521	8,362	8,124	6,650	5,096	4,047

Both groups included aspirin.
*NNT at one year.

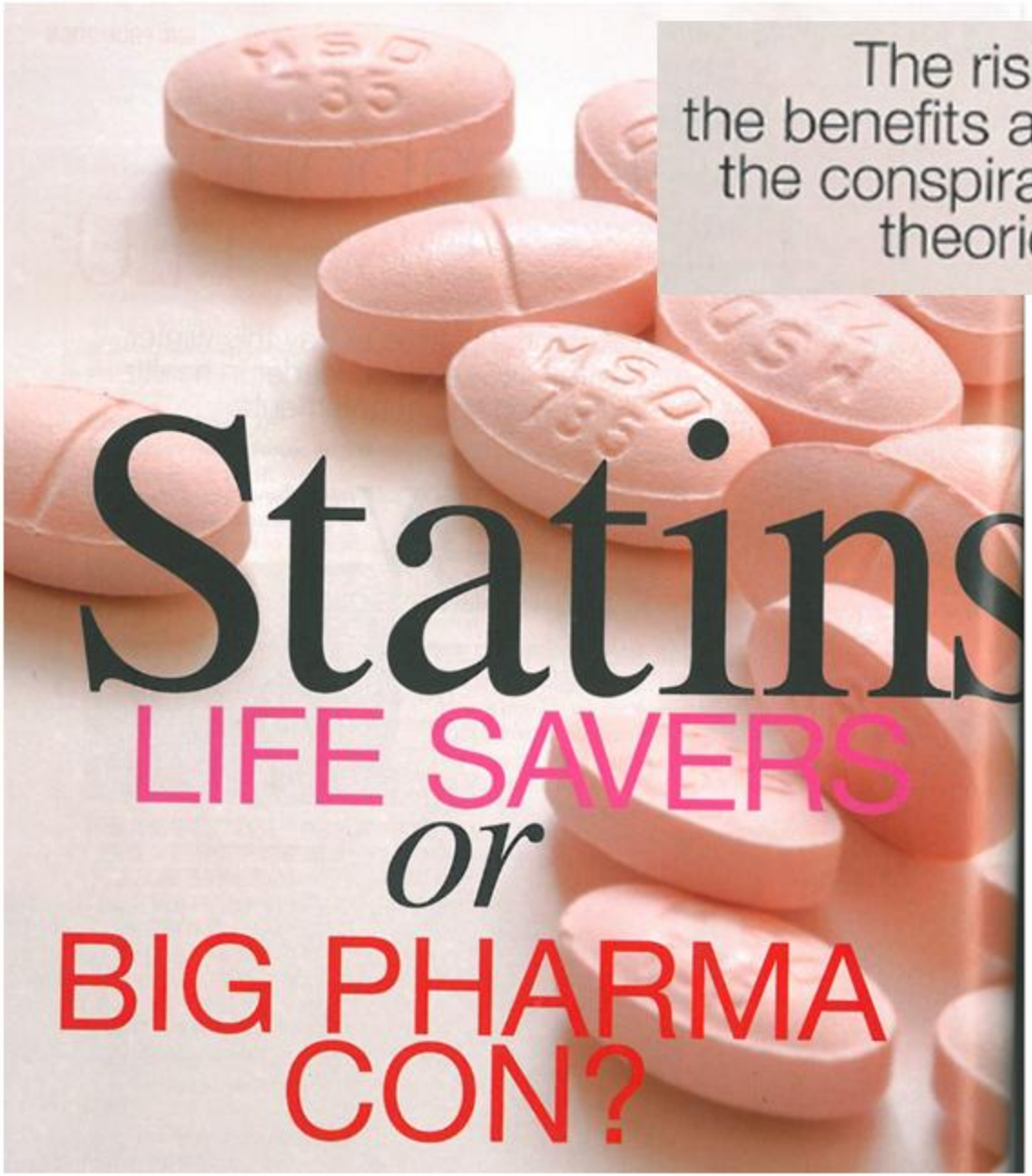
Wallentin L, et al. *N Engl J Med*. 2009;361:1045–1057.

PLATO: Primary Safety Endpoint



No. at risk							
Ticagrelor	9,235	7,246	6,826	6,545	5,129	3,783	3,433
Clopidogrel	9,186	7,305	6,930	6,670	5,209	3,841	3,479

Wallentin L, et al. *N Engl J Med*. 2009;361:1045–1057.



Statins

LIFE SAVERS *or* BIG PHARMA CON?

The risks, the benefits and the conspiracy theories.

Some claim they're nothing but a con, marginally effective drugs foisted on the public by pharmaceutical companies out to make a profit at the expense of our health; others say they are so effective in the fight against cardiovascular disease that they should be added to our drinking water.

Detractors oppose the 'medicalisation' of people who are not ill, and also cite grave side effects as reason enough to avoid the drugs.

- Statins
  - Bad press
    - Memory loss
    - Muscle aches and pains
    - Fatigue
    - Depression
    - My friends have all had side effects
    - No benefit
- Did Noakes say “throw away your statins”?

STATINS IN THE ELDERLY

- Fewer people > 75 in statin trials
- Continue statin if already on
- Starting high intensity statin >75 for 2^0 prevention, not clearly supported on the few data available
- Moderate intensity statin Rx supported ASCVD >75
- Few data available to indicate event reduction in 1^0 prevention >75, without
- clinical ASCVD
- Starting statin for 1^0 prevention >75; requires additional factors, must consider increasing comorbidities, safety,
- Can look at 10 year risk of ASCVD

CONCLUSION

- Elderly lady, chest pain, short of breath
  - Wide differential
- Acute Heart Failure
  - CXR congestion
  - ProBNP 1980
- Precipitated by an acute coronary syndrome
  - Coronary angiogram
- Stent
  - Dispirin + Clopidogrel (Ticagrelor soon to be here)