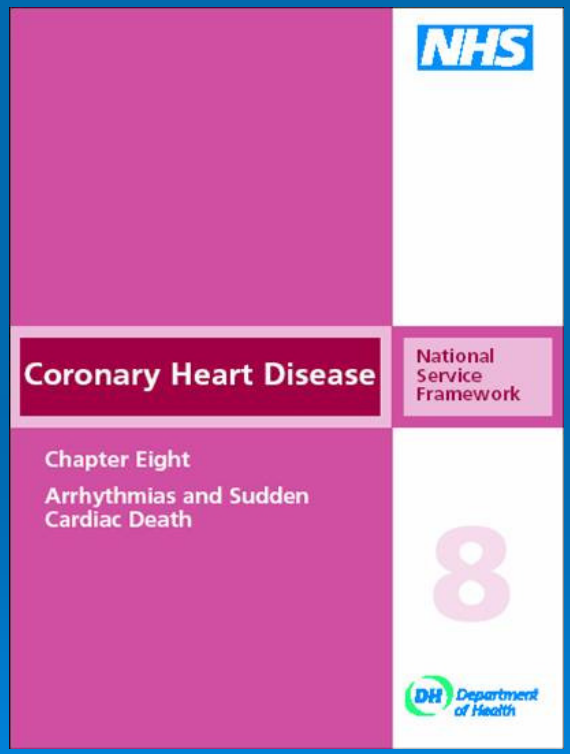
Rapid Access Clinics for Transient Loss of Consciousness



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NSF for Arrhythmia:
Midlands Regional Update
April 2008

Those who suffer from frequent and severe fainting often die suddenly

Hippocrates, 1000 BC

Only if one knows the causes of syncope will he be able to recognise its onset and combat the cause

Maimonides, 1135-1204

Falling Man, Rodin

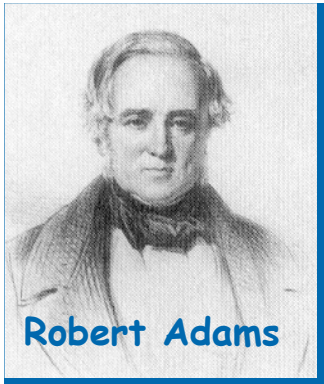
Syncope and TLoC

- Brief transient loss of consciousness
- Usually lasts seconds to minutes
- Results from temporary impairment of cerebral function (brainstem reticular activating system)
- Loss of postural tone
- Spontaneous recovery without resuscitation
- Classically no residual symptoms: can get headache, drowsiness, confusion – particularly in older patients

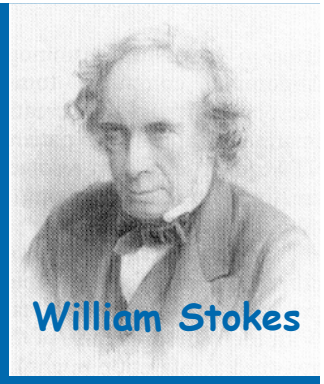
How long does it take to lose consciousness with loss of cerebral perfusion?

- American study on fit, young, male prisoners on death row
  - Leather collar fitted around neck
  - Balloons inflated over carotids
  - Wait for loss of consciousness!

  - 8 – 12 seconds for this group


Robert Adams

Causes of TLoC

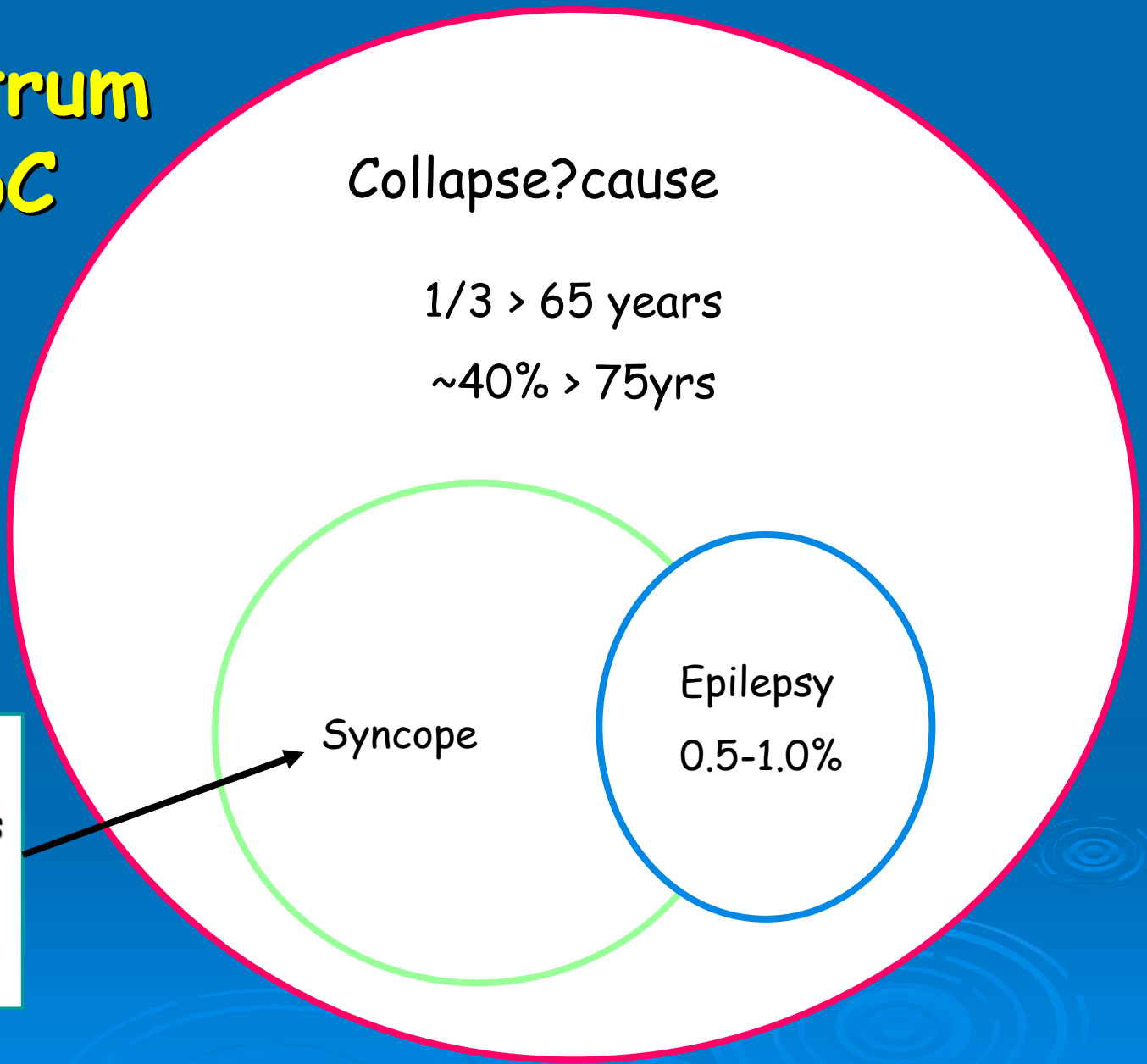

William Stokes

- Neurally-mediated reflex syncopal syndromes
  - Vasovagal, carotid sinus, situational, neuralgia, emotion
- Orthostatic
  - Drugs
  - Autonomic failure
- Cardiac Arrhythmias*
  - Bradycardia, tachycardia
- Metabolic effects
  - Diabetes
- Structural Cardiac or Cardiopulmonary Disease (eg aortic stenosis*)

Physiological classification of TLoC

- Syncope due to low peripheral resistance
  - Reflex syncope
  - Vasodilatation, eg thermal stress
  - Vasodilator drugs
  - Autonomic neuropathies
- Syncope due to low cardiac output
  - Inadequate venous return
  - Arrhythmia, valvular heart disease, decreased LV function
    - HIGH RISK
- Syncope due to increased resistance to cerebral blood flow
  - Low pCO_2 due to hyperventilation

The spectrum of TLoC



- 1 in 2 in a lifetime
- 6.2/1000 patient yrs
- 10.5% over 17 years
- ~ 25% of all groups
- 1 in 3 elderly pts

Epidemiology of Syncope

- The Framingham study reports an incidence of 7.2 per 1000 person-year in a broad population sample
- Assuming a constant incidence rate over time, the Framingham study calculates a 10-year cumulative incidence of 6%
- In selected populations, such as the elderly, the annual incidence may be as high as 6%, with a recurrence rate of 30%

Soteriades ES *et al*, NEJM 2002;347:878-85

Syncope: Reported Prevalence

Individuals <18 yrs	15%
Military Population 17- 46 yrs	20-25%
Individuals 40-59 yrs*	16-19%
Individuals >70 yrs*	23%

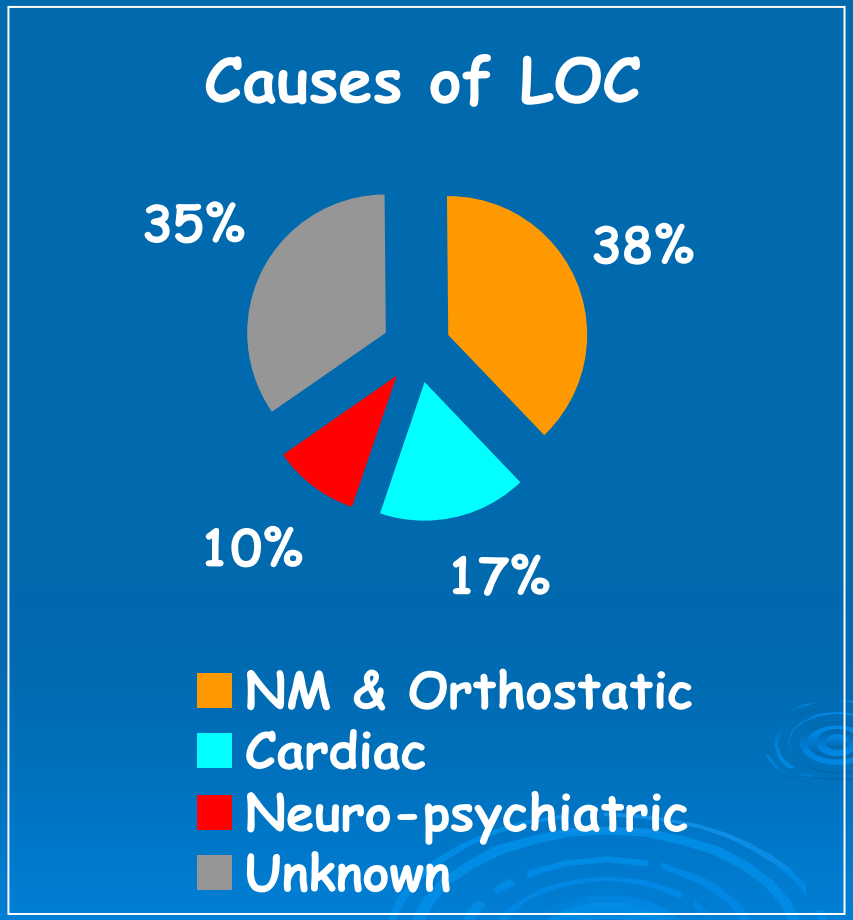
*during a 10-year period

Causes of Loss of Consciousness

- In a substantial proportion of patients, the cause of syncope remains unknown, despite a complete work-up.
- In several studies, the cause could not be determined in 18-35% of all cases of syncope.

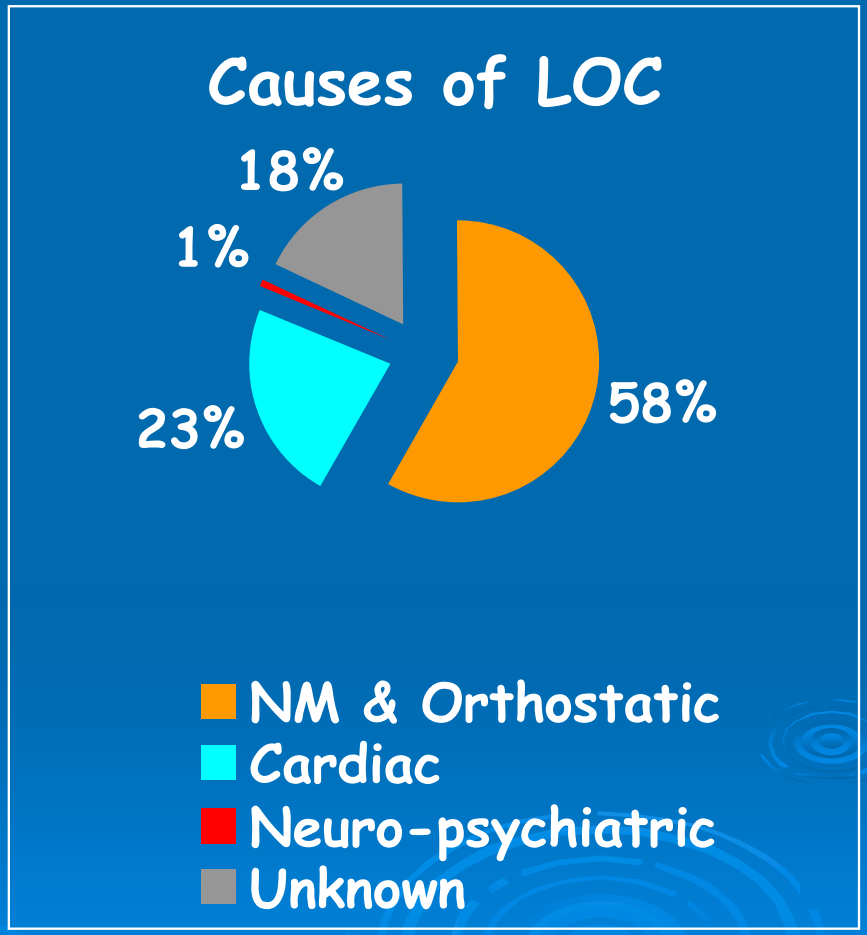
Causes of Loss of Consciousness

- Data pooled from 6 population-based studies performed in the 1980's
- N = 1499 patients
- The cause was undetermined in 35% of all cases of syncope
- Of those with a cardiac cause (n=245), the majority (n=195) were due to a primary arrhythmic mechanism



Causes of Loss of Consciousness

- Data pooled from 3 referral Syncope Units in 2001
- N = 342 patients
- The cause was undetermined in 18% of all cases of syncope
- Of those with a cardiac cause (n=78), the majority (n=68) were due to a primary arrhythmic mechanism



Alboni P *et al*, JACC 2001;37:1921-8

Extent of the Problem

- HES, DOH, 2005-06: Collapse and Syncope (R55)
- 103,879 finished hospital consultant episodes
- 3% of A&E attendances
- 1% of admissions to hospital
- 80% were admitted
- 94% presented as an emergency
- Mean length of stay: 3.9 days
- 50% were ≥75 years of age
- Hospitalisation accounted for 74% of the cost of investigating syncope

CMMC NHS Trust 2003-2004

- 305 episodes (170 male)
- Average: 6/week
- General medicine 159 (52.1%)
- Care of the elderly 65 (21.3%)
- Cardiology 23 (7.5%)
- Mean age 65.9 (0-98 years)
- Mean LOS 7.7days(0-107)

From: Dr Sanjiv Petkar
Manchester Heart Centre

What do you need to run a Rapid Access TLoC Clinic?

- Adequate time to undertake a full history and clinical assessment
  - At least 30 minutes per patient
  - Relative/partner/friend accompanying
- ECG
- Urgent/immediate access to echo
- Access to monitoring facilities
  - Holter
  - Patient activated
  - Loop recorders
- Tilt facilities (inc CSM)
- EP/device/other cardiological support
- Input to/interaction with other services
  - Neurology
  - Elderly Care
  - Psychiatry

How do we decide if TLoC is cardiovascular?

- Initial evaluation
  - **Careful history** from patient and witnesses about circumstances, attack onset and termination
  - **Physical examination** including orthostatic blood pressure measurement
  - **Standard electrocardiogram**
- Further evaluation

Chen L *et al*. Am J Cardiol 2000;85:1189-93

Brignole *et al*, Eur Heart J 2001;22:1256-1306

Causes of non-syncopal attacks

- Disorders resembling syncope with impairment or loss of consciousness
  - Seizure, TIA
- Disorders resembling syncope with intact consciousness
  - Psychogenic syncope, somatization disorders

Laboratory investigations

Certain or suspected heart disease

yes

Cardiac evaluation

- -Echocardiogram
- -ECG monitoring
- -Exercise test
- -EP study
- -ILR

no

Neurally-mediated evaluation

- -Carotid sinus massage
- -Tilt testing
- -ATP test
- -ILR

Brignole *et al*, Eur Heart J. 2001;22:1256-1306

Laboratory Investigations

Useful (when indicated)	Carotid sinus massage Tilt testing Echocardiogram Holter/loop monitoring Electrophysiological test Exercise stress testing Implantable loop recorder
Almost never useful	EEG CT scan & NMR Carotid Doppler sonography Ventricular SAECG Coronary angiography Pulmonary scintigraphy

Problems with care of patients withTLoC

- Management in diverse settings
- Lack of triage
- Recurrences – QOL
  Injuries
- Hospitalisation
- Unnecessary/Over reliance investigations
- Misdiagnosis due to lack of understanding between features of convulsive syncope/epilepsy

Conclusion

- This is not just a syncope clinic
- Multidisciplinary input – referrals/personnel
- Triage into high/low risk groups
- Triage into right care pathway
- Review by a doctor experienced in blackouts
- Definitive treatment available
- Follow-up data will be important