Stokes-Adams Attacks

Synonyms: Adams-Stokes, Morgagni, Morgagni-Adams-Stokes and Spens’ syndrome

A classic Stokes-Adams attack is a collapse without warning, associated with loss of consciousness for a few seconds. Typically, complete (third-degree) heart block is seen on the ECG during an attack (but other ECG abnormalities such as tachy-brady syndrome have been reported).

Cardiologists and other doctors specialising in syncope do not use the term ‘Stokes-Adams attack’ as often these days. The development of investigation techniques and improvements in the understanding of the physiology of the cardiovascular system have meant that there has been a move away from clinical diagnoses to a more rigid diagnostic classification.

Epidemiology

- The condition is usually associated with ischaemic heart disease and so tends to occur in the elderly.
- Stokes-Adams attacks have been reported in much younger age groups, including those with congenital heart block.
- There may be a familial tendency to Stokes-Adams attacks. This was first recognised by William Osler in 1903 within his own family.

Aetiology

With congenital heart block, it has been described as being precipitated by bradycardia or tachycardia.

- Heart block may result from:
  - Myocardial infarction.
  - Fibrosis (usually associated with ischaemia).
  - Atrioventricular (AV) nodal disease.
  - Structural or valvular heart disease.
  - Myocarditis.
  - Electrolyte disturbance.
  - Drugs.
  - Rheumatic diseases including ankylosing spondylitis, Reiter's syndrome, rheumatoid arthritis, scleroderma.
  - Infiltrative processes including amyloidosis, sarcoidosis, tumours, Hodgkin's disease, multiple myeloma.

- Stokes-Adams attacks have been described as due to:
  - Chronic or paroxysmal AV block in 50-60% of patients.
  - Sino-atrial (SA) block in 30-40% of patients.
  - Paroxysmal supraventricular tachycardia or atrial fibrillation in up to 5% of patients.

Presentation

- There is collapse, usually without warning.
- Loss of consciousness is usually between about 10 and 30 seconds.
- Pallor, followed by flushing on recovery, can be reported.
- Some seizure-like activity sometimes occurs if the attack is prolonged.
- If anyone manages to check the pulse during an episode, it will be slow, usually less than 40 beats per minute.
- Recovery is fairly rapid, although the patient may be confused for a while afterwards.
- Typically, complete (third-degree) heart block is seen on the ECG during an attack but other ECG abnormalities such as tachy-brady syndrome have been reported. (The separate article ECG Identification of Conduction Disorders describes a complete heart block in more detail.)
- Attacks can happen a number of times in one day.
- They are not posture-related.

Assessment

See the separate Syncope article, which details the assessment of a patient with a syncopal episode. Briefly, this should include:

- History of other episodes.
- Past medical history, including history of heart disease.
- Drug history: establish whether medication might be contributing.
- Blood pressure examination (supine and standing).
- Cardiovascular examination.
- 12-lead ECG: this may be normal by the time the patient is seen or may show heart block or ischaemic changes; 24-hour ECG may show changes during attacks.
• Routine haematological and biochemical investigations.
• If underlying heart disease is suspected, this should be investigated appropriately.
• If seizure activity has been witnessed, the possibility of epilepsy should be investigated.

Differential diagnosis
This is the differential diagnosis of syncope and includes the following:

• Epilepsy (if convulsions occur).
• Vasovagal fainting.
• Carotid sinus hypersensitivity.
• Orthostatic hypotension.
• A fast tachyarrhythmia (may also reduce cardiac output but does not usually have the same brief but dramatic effect).
• Drop attacks.
• Transient ischaemic attack.
• Syncope due to hypoperfusion - eg, due to hypovolaemia.

Management

• Reversible causes such as drug toxicity should be addressed.
• Underlying heart disease should be managed appropriately.
• A cardiac pacemaker may be required.\(^5\)

Driving and other activities

• If a person is susceptible to syncope with little or no warning then driving must be forbidden, at least until a diagnosis is made and a pacemaker is working well.\(^6\)
• Other behaviours in which sudden loss of consciousness may pose a risk also need to be addressed. These may include cycling, swimming and operating machinery.

Historical background

• William Stokes (1804-1877) and Robert Adams (1791-1875) were both Irish physicians.
• Adams’ description of syncope associated with bradycardia dates back to 1827 and Stokes described the same association in 1846. (Stokes is also remembered for Cheyne-Stokes breathing.)
• Thomas Spens (1764-1842), a Scottish physician, also described a similar syndrome.
Further reading & references

- Transient loss of consciousness ('blackouts') management in adults and young people; NICE Clinical Guideline (August 2010)
- Guidelines on Diagnosis and Management of Syncope; European Society of Cardiology (2009)

6. Assessing fitness to drive: guide for medical professionals; Driver and Vehicle Licensing Agency

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