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.[1] 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).[1]

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.[1]

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.[2, 3]
- There may be a familial tendency to Stokes-Adams attacks. This was first recognised by William Osler in 1903 within his own family.[4]

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.[1]
- 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.[1] (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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