Electrophysiology and Tachycardias

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Disclosures

• Honoraria from Bayer
Reference texts - General

• ESC Guidelines

• Other sources references by ESC Guidelines

• Major corroborated clinical publications

• Basic Clinically relevant science

• Basic Clinical Knowledge
ESC Guidelines....

• 2018
  • Syncope
  • Pregnancy
• 2016
  • Acute and Chronic Heart Failure
  • Atrial Fibrillation
• 2015
  • Ventricular Arrhythmias and SCD
• 2014
  • Hypertrophic Cardiomyopathy
• 2013
  • Pacing and Cardiac Resynchronisation
• 2010
  • ACHD
UK Specific

• DVLA

• NICE/SIGN

• GMC Publications

• UK Law
How to know if UK specific

• It will be obvious

  • According to NICE guidance....

  • UK law requires.....

  • DVLA regulations state....

  • GMC recommendations support....
Question Set Up

• Questions are framed in a clinical context
• Questions should test one key piece of knowledge
• Questions and context should be as short as possible to convey the necessary information
• Answers should be framed as positive where possible and never as double negatives
• All answers should be plausible but one clearly more correct than the rest
• Answers should be equally applicable across geography (except UK specific)
• Answers should be of equivalent length
A 46 year-old-man presents with a series of blackouts. His ECG is shown. His echocardiogram is normal.

The recommended next management step is:

- Ajmaline challenge
- Beta blockade to a sinus rate of 60 or below
- Cardiac MRI
- Electrophysiological testing
- Implantation of ICD
Question 1b

• A 46 year-old-man presents with a series of blackouts. His ECG is shown. His echocardiogram is normal

• The recommended next management step is
  
  • Ajmaline challenge
  • Beta blockade to a sinus rate of 60 or below
  • Cardiac MRI
  • Electrophysiological testing
  • Implantation of ICD
Question 1c

• A 46 year-old-man presents with a series of blackouts. His ECG is shown. His echocardiogram is normal

• The recommended next management step is
  
  • Ajmaline challenge
  • Beta blockade to a sinus rate of 60 or below
  • Cardiac MRI
  • Electrophysiological testing
  • Implantation of ICD
Question 1d

• A 46 year-old-man presents with a series of blackouts. His ECG is shown. His echocardiogram is normal

• The recommended next management step is
  • Ajmaline challenge
  • Beta blockade to a sinus rate of 60 or below
  • Cardiac MRI
  • Electrophysiological testing
  • Implantation of ICD
Question 2

• A 56-year-old woman is resuscitated from ventricular fibrillation. After defibrillation her ECG shows anterior ST elevation and she undergoes pPCI. The following day her echocardiogram shows significant left ventricular dysfunction (LVEF 30%). Bisoprolol, ramipril, spironolactone, atorvastatin, aspirin and clopidogrel

• The optimal strategy for assessing and preventing sudden cardiac death risk is
  • Diagnostic electrophysiological testing 4 weeks post infarct
  • Implantation of a defibrillator 3 months post infarct
  • Implantation of a defibrillator pre discharge
  • Holter monitoring 4 weeks post discharge
  • Repeat echocardiography at 6 weeks post infarct
A 32-year-old man presents with abrupt onset and offset palpitations. He describes these as fast, regular, forceful pulsing in his chest and neck.

The most likely mechanism of the arrhythmia is

- Atrial tachycardia
- AV nodal re entry tachycardia
- AV re entry tachycardia
- Fascicular tachycardia
- Right ventricular outflow tract tachycardia
Question 3b

• A 32-year-old man presents with abrupt onset and offset palpitations. He describes these as fast, regular, forceful pulsing in his chest irregular pulsation in the neck

• The most likely mechanism of the arrhythmia is

  • Atrial fibrillation
  • Atrial tachycardia
  • AV nodal re entry tachycardia
  • AV re entry tachycardia
  • Ventricular tachycardia
Question 4

- A 62-year-old man undergoes pulmonary vein isolation for atrial fibrillation. Ten days later he is admitted with a 2 day history of fever and a series of stroke like episodes. His renal function is normal but Hb 72, WCC 16.4, platelets 504, CRP 258

- The most appropriate imaging modality to identify the most likely cause of his presentation is

  - Cardiac catheterisation
  - Contrast CT
  - FDG PET
  - MRI
  - Transoesophageal echocardiogram
A 33-year-old man undergoes phenotypic family screening and is found to have ARVC. He is asymptomatic and has a mildly dilated right ventricle and no left ventricular involvement.

He enjoys running and exercising at the gym. He should be advised to:

- Avoid all physical exertion
- Continue to exercise as long as remains asymptomatic
- Limit himself to endurance training
- Remain physically active but avoid cardiovascular stress
- Take up high intensity training
Question 6

• A 38-year-old man is admitted with 30 minutes palpitations followed by syncope. His ECG is shown

• The most appropriate management is
  • Amiodarone loading
  • DC cardioversion followed by sotalol
  • ICD implantation
  • In patient electrophysiological studies
  • ‘pill in the pocket’ flecainide
Question 7

• A 34-year-old man with Brugada syndrome is syncopal and on recovery is found to have received appropriate shock therapy from his ICD. The device was implanted 4 years previously for syncope and this is the first therapy

• He commutes by car and asks for advice regarding DVLA regulations. He should be advised

• To surrender his license to the DVLA who are likely to relicense him in 6 months
• Not to drive for 6 months but need not inform the DVLA
• To avoid driving for one month
• To surrender his license to the DVLA who will consider relicensing him in 12 months
• To surrender his license to the DVLA, he will be permanently excluded from driving
Question 8

• A 59-year-old woman attends for heart failure review. She has an established non ischaemic cardiomyopathy and is breathless on moderate exertion. Medication: bisoprolol 10mg, ramipril 10mg, spironolactone 25mg. Echocardiography shows 4 chamber dilatation (LVEF 25%)

• According to NICE/SIGN guidance the optimal device prescription is

  • CRT defibrillator
  • CRT pacemaker
  • Further risk stratification to guide therapy
  • No device therapy
  • Single chamber defibrillator
Question 9

• A 34-year-old asymptomatic man with hypertrophic cardiomyopathy consults regarding risk of sudden cardiac death

• The ESC risk calculator includes the following parameters
  
  • Atrial Fibrillation
  • Blood pressure drop on exercise
  • Gender
  • Left atrial size
  • MRI scar burden
A 35-year-old woman presents with recurrent palpitations documented as a narrow complex tachycardia consults regarding treatment. ECG in sinus is normal, echo shows a structurally normal heart. She wishes to pursue pharmacological options

Appropriate first line options include

- amiodarone
- bisoprolol
- disopyramide
- flecainide
- propafenone