Heart history is a key factor

Dr Jonathan Lyne spoke on the topic of electrical cardiology and palpitation at a recent Blackrock Clinic GP educational meeting, discussing cardiomyopathy presenting in primary care.

Dr Lyne is a consultant cardiologist and electrophysiologist at Blackrock Clinic. His areas of interest include palpitation, cardiac rhythm disturbances, atrial fibrillation and investigation and collapse of fainting.

A thorough history is important to consider the context and the particular type of heart involved. A person with a history of or cardiac disease is at very high risk if they describe any collapse, arrhythmia or palpitation as that may be suggestive of ventricular arrhythmia.

Any ventricular arrhythmia with structural heart disease – a previous heart attack or left ventricular hypertrophy – will be on echo or other imaging, for example – it is a cause for concern.

At higher risk

A person with a history of arrhythmia, recurrent syncope or a malignant family history – a first-degree relative under 55 with sudden death – is another instance – is also at a higher risk. Persons with known heart disease, an ischaemic history with impairment of ventricular function or scarring and symptoms of palpitations had the foundations of ventricular arrhythmia and sudden death, said Dr Lyne.

Some arrhythmias persist and can be documented on an ECG. Some may be intermittent, requiring an ambulatory or Holter monitor. ‘Event moni tors’ are also useful in patients who have intermittent symptoms, said Dr Lyne. People can get these for two to four weeks or more to provide a documentation of their symptoms. In some patients, despite numerous monitoring attempts, they may undergo an electrophysiology study to induce an arrhythmia as a day-case procedure. There are implantable monitors.

Among the major tachycardias are supraventricular tachycardia (SVT), atrial fibrillation (AF), atrial flutter and atrial ablation. AF nodal reentrant tachycardia is one of the most common SVTs – accounting for 80 per cent of these. Among rarer conditions, patients with the Wolf-Parkinson-White syndrome (WPW) have an extra conduction pathway, called an accessory pathway. Accessory pathways – such as exist in patients with WPW syndrome – may lead to arrhythmias.

There are very high success rates — 90 to 95 per cent — with low risks of complications for ablation, in atrioventricular nodal reentry tachycardia (AVNRT), common SVTs, accessory pathways and atrial flutter.

Success rates for ablation with ventricular arrhythmia (certainly with underlying heart disease), have not been quite as high but are improving.

Diseases of the atrium – atrial fibrillation (AF) and atrial flutter – account for well over half of arrhythmias. Atrial fibrillation often involves irregular palpitation and symptoms. Treatment with an anticoagulant drug may be attempted. It will not work for the patients if there are unacceptable side-effects or if the patient declines medication. Dr Lyne offers an ablation, which has been shown to be very successful. In between 85 and 98 percent of cases, AF can be resolved by ablation.

Bradyarrhythmias

Bradyarrhythmias or pauses may occur as sinus node function may deteriorate with age, though they can also be detected in younger people. Sinus node disease is a common cause of pacemaker insertions and is associated with atrial fibrillation and flutter.

In terms of bradyarrhythmia, a sinus arrest (sinus node stoppage) and complete AV block can both be medical emergencies. The most common cause for pacemaker insertion is sinus arrest (the sinus node not working). This may be difficult to confirm at first and may require monitoring of the heart or testing of its electrical function. People may present with dizziness, syncope or loss of consciousness.

It is among the most frequently seen arrhythmias. The European heart rhythm association guidance for AF says that there should be an SCC in order to confirm the diagnosis.

Antiarrhythmia agents are assessed using the CHADS2-VASc score. Treatment with antiarrhythmia agents may or may not be selected.

Rate, rhythm and symptoms were considered, as was the value of ablation as opposed to drugs, said Dr Lyne.

Ablation “upfront” – rather than medical therapies – may be an option in some cases of paroxysmal AF. However, in practice, most patients receive at least one drug. The patients whom Dr Lyne sees might have been previously prescribed a betablocker, warfarin, flecainide, dronedrone – and often more than one of these. Some may have undergone a cardioversion previously. However, ablation can be indicated after the failure of just one medication.

In considering antiarrhythmia, the main issue relates to prevention of plots from the left atrial appendage (plots form in an ‘enkle structure’ – full of crevices and holes – off the left atrium).

The risk of stroke in people with any kind of AF is approximately five times greater than in those who do not have the condition. The risk is the same whether the patient is experiencing paroxysmal AF or persistent AF. It is the scoring system (CHA2DS2-VASc) that will determine risk, not the type of AF. There is also a higher mortality risk. When the score using the CHADS2-VASc scale – which takes into account congestive heart failure, hypertension, age (greater than 65), diabetes, previous stroke or TIA, gender (women are higher risk then men) – is greater than two, antiarrhythmia agents are used in usual usage.

The CHADS2-VASc score gives a significant weighting to factors such as gender and age (eg it is possible to score one for being female and one for being over age 65). Thus most female patients Dr Lyne sees score two, and the guidelines indicate anticoagulation even where the AF is very infrequent.

“Ablation is under-used,” said Dr Lyne. “AF is still a major cause of stroke. It is associated with massive economic, healthcare and morbidity costs.”

In people who cannot receive anticoagulants, a Watchman (or another similar left atrial appendage occlusion device) may be considered. This is a percutaneous procedure, the left atrial appendage where plots form. This has the potential to reduce the risk at the same level as patients receiving warfarin and with less risk of bleeding within the brain.

Ventricular rate

A significant proportion of arrhythmia involves atrial flutter, which frequently does not respond as well to medication. Drugs do not really resolve or treat or prevent flutter very well: more often they tend to slow the ventricular rate.

Atrial flutter with 1:1 conduction was a cause for real concern, said Dr Lyne. In AF, the atrium is in a state of electri- cal chaos. The upper chambers can no longer operate in a co-ordinated fashion.

Compared to many arrhythmias, atrial flutter has been the focus of heart disease. Typically, it involves rotation of the circuit around the tricuspid valve – 300 to 350 times per minute. In this instance, the ventricular rate is around 150 beats per minute. This is recorded and the more typical ECG pattern of flutter waves ‘saw-toothing’ makes these easy to spot.

Atrial flutter is amenable to treatment. The circuit is terminated using a catheter and ablation technique. This is usually done under general anaesthetic and care is taken to avoid clot. A patient who has had atrial flutter may be considered for treatment with atrial ablation therapy. With atrial flutter, Dr Lyne said the risk of recurrence with ablation was very low – less than 1 per cent.

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