# Post-operative arrhythmias

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| cardiology,general surgery,intensive care,onthepods

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James talks to Dr Sean Lal about the management of post-operative arrhythmias on the wards. Dr Sean Lal is a consultant cardiologist who completed his undergraduate and graduate medical studies at the University of Sydney. He undertook general and specialty clinical training at Royal Prince Alfred Hospital.

Sean has a clinical and research interest in heart failure, specifically advanced techniques in cardiac regeneration. He is currently pursuing post-graduate studies in this field through the University of Sydney and Harvard Medical School.

Sean is a Clinical Senior Lecturer at the Sydney Medical School, in addition to being a Lecturer in Anatomy and Head of the Cardiac Research Laboratory in the School of Medical Sciences at The University of Sydney.

## Post-Operative Arrhythmias

*With Dr Sean Lal, Cardiology Advanced Trainee* at Royal Prince Alfred Hospital, New South Wales, Australia*

**Case 1 – You are asked to see a post-operative patient on the ward with new onset atrial fibrillation. What would be your approach to assessing and managing this patient?**

### – 1. What are the common post-operative arrhythmias that we may see on the wards?

- Tachyarrhythmia (HR >100) e.g. atrial fibrillation, atrial flutter
    - can be precipitated by hypovolaemia, anaemia or electrolyte imbalances in the post-operative setting
    - exclude infection/sepsis and coronary ischaemia as underlying causes
    - another cause is thyrotoxicosis
- Sinus Tachycardia
    - can reflect dehydration, however in someone 3-4 days post-op, you need to consider pulmonary embolism

## 2. Initial questions over the phone?

- What are the vitals? Is the patient symptomatic?
- What/when was the operation done?
- Please do a 12-lead ECG and I will come and review the patient

## 3. Approach to post-operative atrial fibrillation

- 12 Lead ECG
    - Confirm atrial fibrillation or atrial flutter
        - Fibrillation – irregularly irregular tachycardia
        - Flutter – regular; HR approx. 150
- Ensure the patient is haemodynamically stable
    - Go through ABCDEF and ensure blood pressure is stable
        - It is rare for atrial fibrillation/flutter to cause haemodynamic compromise
        - Normally secondary to an underlying cause e.g. infection that may be causing the patients instability
        - The only situation where atrial fibrillation would cause haemodynamic instability is if Ejection Fraction<20%
- Is the patient symptomatic? e.g. chest pain/angina; shortness of breath; pre-syncope; palpitations
- Review the notes
    - Is there a history of arrhythmias or coronary disease

## 4. Investigations/Management

- If the patient is asymptomatic and haemodynamically stable -> rarely need immediate management apart from correcting the reversible factors
    - 60% of first onset atrial fibrillation will revert overnight with no management
    - Attempt to try correcting reversible factors
      e.g. UEC – K/Mg replacement
      IVF – can raise BP and reduce heart rate
      Give antibiotics if suspecting an infective process
    - Only then consider antiarrhythmic agents:

        - First Line
            - Metoprolol then consider digoxin/amiodarone
                - **Metoprolol** 25mg BD PO is a good starting point – can wait a few hours after the first dose and give a further 25mg if there is still no/minimal effect
                - **unsafe to give IV metoprolol on the wards
                - **Digoxin** requires a loading dose of 500mcg PO/IV and then 250mcg 6hrs later and a further 250mcg 6hrs after that
                - **consider IV digoxin if concerned about patients inability to absorb tablets or if patient is NBM
                - **Amiodarone** bolus of 300mg IV over 45minutes (in HDU/CCU); continuous infusion requires a PICC line as peripheral cannulas can thrombose
- If it is the first presentation of atrial fibrillation and the patient is symptomatic or tachycardic (HR >150) then they should go to a monitored bed
    - If paroxysmal atrial fibrillation and the patient is asymptomatic there is no need for a monitored bed and they can be managed on the ward
- If they have not reverted by 24hrs despite correcting reversible factors, consider anticoagulation:
    - Contact surgeons in this setting as anticoagulation depends on their concern regards bleeding risk
        - They may want full anticoagulation – IV heparin +/- bolus dose or clexane at 1mg/kg BD or they may just want aspirin

**Case 2 – You are asked to see a patient with a HR of 40 whilst sleeping, what is your approach to management**

– Common Bradycardias

- Sinus bradycardia – usually present in young people when asleep
- Ventricular bigeminy/ectopic beats

– 1. Initial questions over the phone?

- What are the vitals? Is the patient symptomatic?
- What/when was the operation done?
- Please do a 12-lead ECG and I will come and review the patient

## 2. History/Examination

- 12 lead ECG
    - Determine what type of bradycardia the patient is in
        - Sinus bradycardia
        - 1st degree heart block – prolongation PR interval; generally asymptomatic unless very prolonged (in which case most likely some conduction disease)
        - 2nd degree heart block
            - Mobitz T1 – Wenkebach; prolongation of PR interval followed by a blocked P wave (dropped QRS complex)
                - Generally does not require further intervention unless symptomatic
            - Mobitz T2 – intermittent non-conducted P waves not preceded by PR shortening
                - every second P wave may not be conducted to ventricles; can have higher degrees of AV block where more than one or two P waves are not conducted – escape rhythm is coming further down from ventricles
                - needs a monitored bed as can be unstable
        - Complete heart block – atria and ventricles doing two separate things
            - P waves come through; QRS widened suggesting rhythm coming from ventricles
            - Can be quite unstable
            - If narrow complex – suggests junctional escape
            - If wide complex/bundle branch pattern – can be unstable; occasionally need temporary pacing wire even if patient is not unstable
- Isthe patient **symptomatic**?
    - g. dizzy/syncope
- Look for **low output states**

- Reduced urine output or rising creatinine
- Altered mental status or frank acidosis

- Look at medication chart
  - Is the patient on B-blockers or Ca-channel blockers
  - If the patient is on digoxin ?toxicity

## Take home messages

- Contact cardiology – at any time if concerned
  - If patient symptomatic i.e. chest pain/pre-syncope
  - If clinical evidence of heart failure or compromise
    - What would they expect to be done?
      - 12 lead ECG
      - history and clinical exam ?haemodynamic compromise/murmur; symptomatic – palpitations/syncope/chest pain
    - Who goes to a monitored bed
      - secondary heart failure;
      - Symptomatic or if haemodynamically compromised (consider CCU vs. ICU)
      - asymptomatic HR >150/<40

**This podcast was recorded in 2013 at which time Dr Sean Lal, who is now a consultant Cardiologist, was an Advanced Trainee*

## Related Podcasts

- Atrial fibrillation

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