1 **Electrocardiography for Healthcare Professionals**

Chapter 6: Atrial Dysrhythmias

2 **Learning Outcomes**

6.1 Summarize the similarities between atrial dysrhythmias.

6.2 Identify premature atrial complexes using the criteria for classification and explain how the rhythm may affect the patient including basic patient care and treatment.

6.3 Identify wandering atrial pacemaker using the criteria for classification and explain how the rhythm may affect the patient including basic patient care and treatment.

3 **Learning Outcomes**

6.4 Identify multifocal atrial tachycardia using the criteria for classification and explain how the rhythm may affect the patient including basic patient care and treatment.

6.5 Identify atrial flutter using the criteria for classification and explain how the rhythm may affect the patient including basic patient care and treatment.

6.6 Identify atrial fibrillation using the criteria for classification and explain how the rhythm may affect the patient including basic patient care and treatment.

4 **6.1 Introduction to Atrial Dysrhythmias**

- Caused by ectopic impulse in right or left atria
- Overrides the SA node impulse
- Occur from conditions that cause pressure on the atria

5 **6.1 Apply Your Knowledge**

What conditions cause pressure on the atria resulting in atrial dysrhythmias?

6 **6.1 Apply Your Knowledge**

What conditions cause pressure on the atria resulting in atrial dysrhythmias?

Answer: Myocardial infarction, valvular problems, or neurological influences

7 **6.2 Premature Atrial Complexes (PACs)**

- Electrical impulses originate in the atria and initiate an early impulse, disrupting the regular rhythm

8 **6.2 Premature Atrial Contractions Criteria**

- Rhythm – regularity between P-P and R-R intervals is constant, with exception of occasional early complex
- Rate – atria and ventricles usually 60-100, depending on frequency of PACs

9 **6.2 Premature Atrial Contractions Criteria (Cont'd)**

- P wave configuration
  - Uniform shape, except for the early beat
  - Early beat may be flattened, notched, biphasic, or otherwise unusual
  - Early P wave may be hidden within T wave

10 **6.2 Premature Atrial Contractions Criteria (Cont'd)**

- PR interval
  - ☐Between 0.12 and 0.20 second
  - ☐Early beat may have different PR measurements, but within normal limit
- QRS duration
  - ☐Between 0.06 and 0.10 second

11 **6.2 Premature Atrial Complexes**
What You Should Know

- Patient may experience the symptoms of low cardiac output
- Severity of patient's complaints is related to the frequency of PACs
- Frequent PACs may indicate a more serious atrial dysrhythmia

12 **6.2 Apply Your Knowledge**

What is the pattern in which every third complex is a premature beat?

13 **6.2 Apply Your Knowledge**

What is the pattern in which every third complex is a premature beat?

Answer: Trigeminy

14 **6.3 Wandering Atrial Pacemaker (WAP)**

- Pacemaker site shifts between the SA node, atria, and/or AV junction
- P wave configuration changes in appearance
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15 **6.3 Wandering Atrial Pacemaker Criteria**

- Rhythm – irregular
- Rate – 60-100 beats per minute
- P wave configuration – continuous change
- PR interval – variable
- QRS duration and configuration – 0.06-0.10 second

16 **6.3 Apply Your Knowledge**

What is unique about Wandering Atrial Pacemaker rhythm?

17 **6.3 Apply Your Knowledge**

What is unique about Wandering Atrial Pacemaker rhythm?

Answer: WAP has a changing P wave configuration with at least 3 variations in one lead.

18 **6.4 Multifocal Atrial Tachycardia (MAT)**

- Same characteristics as WAP but with a rate of 101 to 150 beats per minute
- Frequently mistaken for atrial fibrillation
- Often seen with emphysema, congestive heart failure, or acute mitral regurgitation

19 **6.4 Apply Your Knowledge**

What is unique about Multifocal Atrial Tachycardia?

20 **6.4 Apply Your Knowledge**

What is unique about Multifocal Atrial Tachycardia?

Answer: MAT has a clearly changing P wave and a rate of 101 to 150 bpm.

21 **6.4 Apply Your Knowledge**

Which of the rhythms can be mistaken for atrial fibrillation?

22 **6.4 Apply Your Knowledge**

Which of the rhythms can be mistaken for atrial fibrillation?

ANSWER: Multifocal atrial tachycardia

23 **6.5 Atrial Flutter (A Flutter)**

- Occurs when rapid impulse originates in atrial tissue
- Ectopic focus may originate from ischemic areas or from a reentry pathway

24 **6.5 Atrial Flutter (A Flutter) (cont'd)**

- Reentry pathways provide faster routes for impulses
- May lead to more serious condition (atrial dysrhythmia) if not treated

25 **6.5 Atrial Flutter Criteria**

- Rhythm
  - ☐P-P interval or flutter-to-flutter waves will be regular and stay constant throughout rhythm
  - ☐R-R interval can be regular or irregular
- Atrial rate is 250 to 350 beats per minute
  - ☐

26 **6.5 Atrial Flutter Criteria (Cont'd)**

- P wave configuration
  - ☐P wave not seen; only flutter waves present
  - ☐Flutter waves resemble saw-tooth or picket fence and are seen in leads II, III and AVF
- PR interval – not identifiable
- QRS interval – 0.06-0.10 second

27 **6.5 Atrial Flutter**
What You Should Know

- Loss of atrial kick reduces cardiac output by 10 to 30%
- Patients with increased heart rate will demonstrate signs of low cardiac output
- Treatment plan may include oxygen

28 **6.5 Apply Your Knowledge**

Which of the rhythms has an atrial rate of 250 to 350 beats per minute?

29 **6.5 Apply Your Knowledge**

Which of the rhythms has an atrial rate of 250 to 350 beats per minute?

ANSWER: Atrial flutter

30 **6.6 Atrial Fibrillation (A Fib.)**

- Occurs when electrical impulses come from areas of reentry pathways or multiple ectopic foci
- Electrical impulse results in depolarization of small groups of cells, versus whole atrium
- Multiple atrial activity recorded as chaotic wave – no identifiable P waves

31 **6.6 Atrial Fibrillation Criteria**

- Rhythm
  - ☐P-P interval is not determinable
  - ☐R-R interval is irregular
- Rate
  - ☐Atrial rate is 375-700 beats per minute
  - ☐Ventricular rate is 160-180

32 **6.6 Atrial Fibrillation Criteria (Cont'd)**

- PR interval – cannot be identified
- QRS duration – 0.06-0.10 second

33 **6.6 Atrial Fibrillation**
What You Should Know

- Patient exhibits signs of decreased cardiac output
- When heart rate is controlled, patient may be able to tolerate loss of atrial kick
- Blood collecting in atria can clot or form thrombus, which increases risk of embolism

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34 **6.6 Apply Your Knowledge**

What is the major health risk for patients with Atrial Fibrillation?

35 **6.6 Apply Your Knowledge**

What is the major health risk for patients with Atrial Fibrillation?

Answer: Thrombus formation and embolism due to blood collecting in the atria.

36 **Chapter Summary**

- Atrial dysrhythmias are caused by an ectopic impulse in either of the atria.
- Premature atrial complexes (PACs) originate in the atria and initiate an early impulse that interrupts the inherent regular rhythm.

37 **Chapter Summary (Cont'd)**

- A wandering atrial pacemaker (WAP)
  is a rhythm in which the pacemaker site shifts between the SA node, atria, or the AV junction. The P wave configuration changes in appearance during the pacemaker shift.

38 **Chapter Summary (Cont'd)**

- Multifocal atrial tachycardia (MAT) has a P wave that changes from beat to beat and a heart rate of 101 to 150 beats per minute.

39 **Chapter Summary (Cont'd)**

- Atrial flutter (A flutter) occurs when a rapid impulse originates in the atrial tissue. This

presents with a classic sawtooth appearance known as flutter or F waves.

40 **Chapter Summary (Cont'd)**

- Atrial fibrillation (A fib) occurs when electrical impulses come from areas of re-entry pathways or multiple ectopic foci. This results in depolarization of only a small group of atrial cells. It presents with classic chaotic waves.

41 **Electrocardiography for Health Care Personnel**

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END OF Chapter 6: Rhythms Originating from the Atria