Dysrhythmia Monitoring

Expected Practice
- Select the best monitoring leads for dysrhythmia identification (display 2 leads when possible).
- Lead V1 to diagnose wide QRS complex.
- Lead II to diagnose atrial activity and measure heart rate.
- Proper electrode placement is required for accurate diagnosis (see Figure).
- Prepare the patient’s skin before attaching ECG electrodes.
- Measure QT interval and calculate QTc using a consistent lead if high risk for Torsades de Pointes.

Scope and Impact of the Problem
- Studies show that nurses often monitor in a single lead regardless of diagnosis.1,2
- Failure to properly prep skin prior to electrode placement may cause inappropriate monitoring alarms.3,4
- When an electrode is misplaced by as little as 1 intercostal space, QRS morphology can change and misdiagnosis may occur (ie, ventricular tachycardia [VT] may be misidentified as supraventricular tachycardia [SVT] or vise versa).5

Supporting Evidence
- V1 is the lead of choice to diagnose wide QRS complexes (VT vs SVT with aberrant conduction; left vs right BBB). A 5-lead monitoring system is required to monitor V leads. MCL1 may differ in QRS morphology as compared to V1 and should be used only when a 5 lead monitoring system is unavailable.6-10 (Level V)
- When V1 electrode placement is not possible, V6 may be used.7,11 (Level IV)
- Electrode site preparation includes clipping excessive hair and cleansing oily skin with alcohol.3,4 (Level IV)
- QTc >0.50 s (500 ms) is dangerously prolonged and associated with risk for Torsades de Pointes. The QT interval should be corrected for heart rate (QTc) and monitored with any of the following8,10,12,15:
  - Antidysrhythmic, antibiotic, antipsychotic, and other drugs that prolong QTc
  - Severe bradycardia
  - Hypokalemia or hypomagnesemia
  - Any drug overdose
- Perform an atrial electrogram (AEG) in cardiac surgical patients with atrial epicardial wires to assist in identifying atrial activity.16,17 (Level V)
- Pediatric—Abnormal prolongation: QTc >0.40 s ± 10%. Pediatric limits are age specific and shorter than adult ranges.18
**Actions for Nursing Practice**

- Ensure that your organization has written policies and procedures related to cardiac monitoring.
- Provide appropriate ECG education for staff.
- Develop proficiency standards for all staff involved with ECG monitoring to ensure accurate and effective monitoring.
- Consider conducting an audit to assess:
  - Electrode placement
  - Lead selection

**Need More Information or Help?**

- An audit tool for measuring compliance with lead selection and lead placement is available at www.aacn.org.
- Contact with a clinical practice specialist for additional information/assistance (www.aacn.org, select PRN).

**AACN Grading Level of Evidence**

- Level I: Manufacturer’s recommendations only
- Level II: Theory based, no research data to support recommendations; recommendations from expert consensus group may exist
- Level III: Laboratory data, no clinical data to support recommendations
- Level IV: Limited clinical studies to support recommendations
- Level V: Clinical studies in more than one or two patient populations and situations to support recommendations
- Level VI: Clinical studies in a variety of patient populations and situations to support recommendations.

**References**

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