

# **Emergency Cardiology 2018: The Articles You've Got to Know!**

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## **Schlapfer J, Wellens HJ. Computer-interpreted electrocardiograms: benefits and limitations. J Am Coll Cardiol 2017**

- There is no internationally accepted standard for computer interpretations
- No direct comparative evaluations of the various commercially available CIE programs has been done
- Accuracy of CIEs in dx of STEMI
  - Wide variations in false positive (0-42%) and false negatives (22-42%) exist
  - It is NOT recommended that CIEs be used as a sole means for activation of the cath lab
- Arrhythmias
  - There is a frequent tendency to overcall atrial fibrillation
  - Double-counting the rate due to large T-waves is not uncommon
  - Up to 75% of pacemaker rhythms are misinterpreted
- There is frequent underestimation of the QT interval
  - Errors increase with artifact or improperly placed leads
- “Computer-based analysis of the ECG may lead to erroneous diagnosis with useless, inappropriate, or even dangerous care of the patient.”
- “It has been roughly estimated these misdiagnoses may account for up to 10,000 adverse effects or avoidable deaths worldwide annually.”

## **Wilson SS, Kwiatkowski GM, Millis SR, et al. Use of nitroglycerin by bolus prevents intensive care unit admission in patients with acute hypertensive heart failure. Am J Emerg Med 2017**

- Evaluated bolus (2mg) IV NTG dosing vs. continuous infusions vs. continuous infusions + occasional bolus dosing in patients admitted for acute heart failure
  - Patients in bolus group had
    - Decreased ICU admission
    - Decreased hospital length of stay
    - No difference in hypotension or other adverse effects
- Prior literature on aggressive dosing of NTG has demonstrated
  - Rapid improvements in preload, afterload, and cardiac output
  - Safety and tolerability; very short half-life if problems occur
  - Decreased intubation rates, decreased ICU admissions and length of stay, decreased cost
- Key point → be aggressive with dosing NTG!

**Millard MA, Nagarajan V, Kohan LC, et al. Initial electrocardiogram as determinant of hospital course in ST elevation myocardial infarction. Ann Noninvasive Electrocardiol 2017**

- 334 patients diagnosed with STEMI
  - 85% were diagnosed on the first ECG
  - 15% were diagnosed on the subsequent ECG
  - Prior literature: up to 20% of STEMIIs are diagnosed on a repeat ECG

**Co I, Eilbert W, Chiganos T. New electrocardiographic changes in patients diagnosed with pulmonary embolism. J Emerg Med 2017**

- 285 PEs diagnosed on CTA
  - Findings on ECG
    - No changes: 24%
    - T-wave inversions: 34%
    - T-wave flattening: 30%
    - Sinus tachycardia: 27%
    - Rightward axis: 11%
    - ST-segment changes: 9%
    - S<sub>1</sub>Q<sub>3</sub>T<sub>3</sub>: 4%