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Effectiveness of coronary computed tomography as tool in emergency department patients with acute chest pain: A systematic review of the literature

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Abstract

Context: In an effort to improve the quality of patient care while maintaining patient safety, health care professionals are increasingly turning to up-to-date evidence to ensure better patient outcomes. In order to make informed decisions, health care practitioners, including nurses, must be skilled at introducing, developing and evaluating evidence-based practice. This article presents evidence related to the use of cardiac computed tomography angiography (CCTA) as adjuvant to the care of patients who present to the emergency department (ED) with acute chest pain. Using the Iowa model as a guide, the aim of this literature review was to provide an overview of the effectiveness of this technology and its implications for nursing care of acute chest pain in the ED.

Method: PubMed database articles published in the English language from June 2008 to July 2013. Studies with an evidence rating scale (ERS) for evidence based nursing of IV or above were selected for review. Data was systematically extracted from each article included for review. A summary of key findings are reported.

Results: This review found that CCTA has an excellent negative predictive value and a strong sensitivity and specificity for diagnosing coronary artery disease and ruling out acute coronary syndrome in patients with low-to-intermediate risk of coronary artery disease. Using this CCTA, patients can be safely discharged to home, often from the ED, in less time and at a lower cost than the current standard of care. In addition, recent technological improvements in scanning equipment, coupled with improved scanning protocols, has significantly reduce the radiation exposure associated with these scans, which is the most significant limiting factor.

Conclusions: CCTA is an efficient tool for the evaluation of low-to-intermediate risk patients presenting to the emergency department with the primary complaint of acute chest pain.

Biography

Joan Catherine Widmer is a certified emergency nurse employed by Catholic Medical Center in Manchester, New Hampshire. She has worked as an RN for the past 8 years, the last three in emergency nursing. Prior to working in health care, she had a twenty-five year career in corporate accounting and finance. She holds an ASN from Rivier College, a BA from the University of California, San Diego and an M.S. in Business Administration from the University of Massachusetts, Amherst. She is currently pursuing her master's in Nursing, Evidence Based Practice at the University of New Hampshire.

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