FERNE: Critical Issues in the Evaluation and Management of Adult Patients Presenting to the Emergency Department with Acute Heart Failure Syndromes

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Heart Failure - US Statistics

- 5 million with heart failure (2.3%)
- 550,000 new cases annually
- Annual death rate 18.7%
- 1 million hospital admissions annually
- 80% of admissions are through the ED
- Leading discharge diagnosis > 65 yo
- Costs ≅ $ 30 billion US

AHA. *Heart Disease and Stroke Statistics*: 2005 Update; 2005.
AHA. *2002 Heart and Stroke Statistical Update; 2002*
(ADHERE). Am Heart J. 2005;149:209-216

Question #1

Does a B-type natriuretic polypeptide (BNP) or NT-ProBNP measurement improve the diagnostic accuracy over standard clinical judgment in the assessment of possible acute heart failure syndromes in the ED?

Question #1

Patient Management Recommendations

- *Level A recommendations*. None specified.

Question #1

- *Level B recommendations*.
  The addition of a single BNP or NT-proBNP measurement can improve the diagnostic accuracy compared to standard clinical judgment alone in the diagnosis of acute heart failure syndrome among patients presenting to the ED with acute dyspnea.
  Use the following guidelines:
  - BNP <100 pg/dL or NT-proBNP <300 pg/dL
    Acute heart failure syndrome unlikely*
    (Approximate LR- = 0.1)
  - BNP >500 pg/dL or NT-proBNP >1,000 pg/dL
    Acute heart failure syndrome likely
    (Approximate LR+ = 6)

Question #1

- *Level C recommendations.*
  - None specified.

<u>Unit Conversions</u>
BNP conversion: 100 pg/mL=22 pmol/L
NT-proBNP conversion: 300 pg/mL=35 pmol/L

Question #2

- Is there a role for noninvasive positive-pressure ventilatory support in the ED management of patients with acute heart failure syndromes and respiratory distress?

Question #2

Patient Management Recommendations

- *Level A recommendations*.
  None specified.

Question #2

- *Level B recommendations*.
  Use 5 to 10 mm Hg CPAP by nasal or face mask as therapy for dyspneic patients with acute heart failure syndrome without hypotension or the need for emergent intubation to improve heart rate, respiratory rate, blood pressure, reduce the need for intubation, and possibly reduce inhospital mortality.

Question #2

- *Level C recommendations*.
  Consider using BiPAP as an alternative to CPAP for dyspneic patients with acute heart failure syndrome; however, data regarding the possible association between BiPAP and myocardial infarction remain unclear.

Question #3

Should vasodilator therapy (eg, nitrates, nesiritide, and ACE inhibitors) be prescribed in the ED management of patients with acute heart failure syndromes?

Question #3

Patient Management Recommendations

- *Level A recommendations.*
  None specified.

Question #3

- *Level B recommendations.*
  Administer intravenous nitrate therapy to patients with acute heart failure syndromes and associated dyspnea.

Question #3

- *Level C recommendations.*
  1. Due to the lack of clear superiority of nesiritide over nitrates in acute heart failure syndrome and the current uncertainty regarding its safety, nesiritide generally should not be considered first line therapy for acute heart failure syndromes.
  2. Angiotensin-converting enzyme (ACE) inhibitors may be used in the initial management of acute heart failure syndromes, although patients must be monitored for first dose hypotension.

Question #4

Patient Management Recommendations
- *Level A recommendations.*
  None specified.

Question #4

- *Level B recommendations.*
  Treat patients with moderate-to-severe pulmonary edema resulting from acute heart failure with furosemide in combination with nitrate therapy.

Question #4

- *Level C recommendations.*
  1. Aggressive diuretic monotherapy is unlikely to prevent the need for endotracheal intubation compared with aggressive nitrate monotherapy.
  2. Diuretics should be administered judiciously, given the potential association between diuretics, worsening renal function, and the known association between worsening renal function at index hospitalization and long-term mortality.

AHFS Clinical Policy

- Annals of Emergency Medicine May 2007
- Policy with evidentiary table available online
- Available now for download at:
  www.acep.org