Clinical Practice Statement

Telemetry Bed Usage for Patients with Low-Risk Chest Pain

(Reviewed/Updated from 2011)

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Recommendations:

1. Insufficient data exist to support telemetry use in low-risk chest pain patients. (unchanged from 2011)
2. The HEART score can identify patients at low-risk of short-term major adverse cardiovascular events. These patients are unlikely to benefit from telemetry monitoring.
3. Emergency departments and inpatient units may benefit from collaboration in implementing the AHA guidelines for telemetry use for admitted patients.

Introduction:

In 2011, the Clinical Practice Committee (CPC) of the American Academy of Emergency Medicine (AAEM) published a statement on Telemetry Bed Usage for Patients with Low Risk Chest Pain. The high-level conclusions of this statement were:

> 1) Insufficient data exist to support telemetry use in low-risk chest pain patients.
>
> 2) Patients who are at low risk for significant 30-day morbidity and mortality and are therefore unlikely to benefit from telemetry monitoring should have a normal first set of cardiac enzymes and a Goldman risk score of zero (normal/non-diagnostic ECG plus none of the following: hypotension, rales above the bases, or pain worse than baseline angina).

In the years since the 2011 statement, the HEART score has led to a higher level of comfort with the outpatient management of low-risk chest pain. For this statement update, we specifically focused on telemetry use in low-risk chest pain patients. The questions of admission

and diagnostic testing (including high sensitivity troponin) are beyond the scope of this update of the 2011 statement.

The intention of this focused update is to assess the literature for any additional evidence that would alter these conclusions. We followed the methods for AAEM CPC focused literature reviews. The full results of our search strategy and literature grading are in the appendix.

Executive Summary: The literature published since 2011 around this topic is surprisingly limited. First, the American Heart Association performed a comprehensive statement on which patients may benefit from telemetry. They note that for “low -risk and noncardiac chest pain” (risk score derived from established scoring tool) there is no evidence of benefit (Class of Recommendation III: No Benefit; Level of Evidence C).[1]

Second, the HEART score appears to be a safe and effective method to identify low-risk chest pain patients in the emergency department as demonstrated in multiple studies.[2,3] One meta-analysis found a missed cardiac event rate of approximately 1.6% in low risk patients, although that level of events over the 6-12 weeks of follow up seems unlikely to change the need for telemetry monitoring.[4] Additionally, a systematic review in JAMA concluded: “Among patients with suspected ACS presenting to emergency departments, the initial history, physical examination, and electrocardiogram alone did not confirm or exclude the diagnosis of ACS. Instead, the HEART or TIMI risk scores, which incorporate the first cardiac troponin, provided more diagnostic information.”[5]

A registry based study suggested that telemetry may lead to improved outcomes in patients who experience cardiac arrest, however the event rate was very low (0.1 events per 1000 bed days for telemetry units) and these populations included other indications for telemetry (electrolyte abnormalities, biomarker proven acute coronary syndrome, etc.).[6] A study evaluating implementation of the AHA guidelines for telemetry into bed ordering, found that telemetry use was reduced over 40% and there was no attendant increase in mortality, code blue, or rapid response utilization.[7]

Conclusions:
We did not find any evidence to alter the 2011 recommendation that telemetry is unlikely to be beneficial in low-risk chest pain. Furthermore, we did not find any evidence that telemetry is beneficial for low-risk patients, and quality improvement efforts that focused on reducing its use were not associated with increased complications. Areas of uncertainty exist on what low-risk patients actually benefit from additional imaging or stress testing both in the hospital or as an outpatient, this may be an important area to examine in future CPC statements. The HEART score appears to be a valid, reproducible, and effective method to identify low-risk patients and has been added to the updated recommendations.

Literature Search Strategy

Initially, as per the AAEM CPC expedited search strategy, we searched for systematic reviews relevant to low risk chest pain.

("Chest Pain"[Mesh] AND "Low Risk"[All Fields]) OR "low risk chest pain"[ti] AND systematic[sb] AND ("2009/01/30"[PDat] : "2019/01/27"[PDat]) (#16 Findings)

This yielded a total of two potentially relevant studies, although none directly addressed telemetry. (Link to reviewed articles.)

We expanded the search for all pubmed citations over the time period (not just systematic reviews). This yielded 76 possible manuscripts. Only two addressed telemetry (including the last CPC statement). (Link to reviewed articles)

References

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