

Prehospital Adverse Events Associated with Nitroglycerin Use in STEMI Patients with Right Ventricle Infarction

McConnell A. MD, MKin, Davis M. MD, MSc, Van Aarsen K MSc, Columbus M, PhD, Lewell M. MD

Introduction: Paramedics in our region do not perform 15-lead ECGs. As a result, patients experiencing a Right Ventricular Infarct (RVI) may receive nitroglycerin (NTG). In many cases, paramedics do not administer NTG to those with inferior STEMI out of concern that there may be an associated RVI. The purpose of this study is to determine if there is a difference in prehospital adverse events (AEs) associated with NTG administration in patients with RVIs compared to those with an inferior STEMI and no RVI.

Methods: Ambulance Call Records (ACR) of patients with prehospital STEMI between Jan 1, 2012 and Dec 31, 2015 were analyzed for the incidence of NTG administration. AEs were defined as HR < 60 bpm, systolic BP < 100 mmHg or drop of 1/3, GCS decrease of >2, syncope, arrest or death. Hospital records were reviewed to determine patients diagnosed with an inferior STEMI without RVI and those with a concurrent or primary RVI as diagnosed on angiography, ECG or discharge diagnosis.

Results: Of the 334 ACRs that were filtered and manually reviewed, 144 were excluded (not STEMI, inter-facility transports, duplicate ACR) resulting in 189 patients that had a prehospital STEMI. The mean (SD) age was 66.9 (13.5) years and 70.6% were male. Of 189 STEMI patients, 82 (42.9%) received NTG. Nineteen (41.3%) of these patients were subsequently diagnosed with RVI and 27 (58.7%) had inferior STEMI without RVI.

For patients receiving NTG, AEs occurred in 11 (57.9%) within the RVI group, and 10 (37.0%) within the inferior STEMI group (Δ 20.9%, 95% CI -7.8% to 45.4%, $p=0.2$). Cardiac arrest or death did not occur in either group.

A total of 107 did not receive NTG and of these, 93 (86.9%) did not meet conditions or had contraindications for NTG use (22 RVI, 42 inferior STEMI). Three patients had a cardiac arrest and one died while in EMS care, none of which received NTG or had RVIs.

Conclusions: Results of this study suggest no difference in the rate of AEs between patients with inferior STEMI and STEMI with RVI when NTG is administered in the prehospital setting. In our EMS system, the conditions and contraindications of NTG administration may be protective against AEs in RVIs, so the potential benefit of a prehospital 15-lead ECG may be limited.

Categories: Emergency Medical Services (EMS), Cardiology

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