

# *Paramedic - Evidence Based Medicine (P-EBP) Program*

## Paramedic CAT (Critically Appraised Topic) Worksheet

Title: Pre-hospital Management of Unstable Angina; Sub-lingual Nitro vs. IV Nitro.

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### Clinical Scenario:

A paramedic crew was responding to the home of a 65 year old male complaining of cardiac type chest pain with radiation down his left arm. This patient has a long cardiac history. He has taken 3 sprays of his own nitro with minimal relief. The patient resides in a rural community, 35 minutes from the closest ambulance base so First Responders are dispatched. Inside the home they find the patient to be alert, diaphoretic and complaining of centre chest pain with radiation down his left arm, he is also complaining of nausea. First Responders administered oxygen and this, in combination with the 3 sprays of nitro, has lessened his discomfort but the pain is still not gone. After Paramedic treatment of 12 lead IV, 3 sprays of nitro, morphine and ASA, patient is loaded and transported to nearest hospital which is 35 minutes away. 25 minutes from the hospital patient's vitals are all stable and he is now complaining of an increase in chest pain to the same degree of the original pain when 911 was called (Pain scale 7/10). He has become more diaphoretic. Would the patient's condition have improved with IV nitro?

### PICO (Population – Intervention – Comparison – Outcome) Question:

P – Patient with Unstable Angina

I – Nitro Sublingual Spray

C – Nitro IV

O – IV Nitro vs. SL Nitro

In Unstable Angina patients would IV Nitro better manage symptoms than SL Nitro.

### Search Strategy:

Pubmed – (High Dose Nitrates) or (Immediate Management of Unstable Angina) and (IV vs SL)

Google – (High Doses of Nitrates) and (Unstable Angina)

### Search Outcome:

2 hits (one was in Russian Language)

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## Relevant Papers:

AUTHOR, DATE	POPULATION: SAMPLE CHARACTERISTICS	DESIGN (LOE)	OUTCOMES	RESULTS	STRENGTHS/ WEAKNESSES
Dr.Cotter (1997)	72 consecutive patients with unstable angina accompanied by ST on EKG while being delivered to the hospital were randomly assigned.	Single Centre Prospective Trial(random) (LOE II)	In IV treated patients a pronounced therapeutic affect was experienced assessed by reduction in chest pain. They scored 67% vs 39% for SL.	72 Pre-hospital patients enrolled with the following results: Optimal blood pressure achieved 68% in IV vs 41% in SL Pts. Reduction in chest pain 67% IV vs 39% SL. Decrease in ST segment depressions 57% IV vs. 27% SL	Single Centre Study with only 72 Patients in this study. Patients were treated by a doctor and a paramedic in Ambulance. Male/Female ratio was equal. Age range of patients was equal. Detailed questionnaires were completed on each patient by the paramedic and doctor on the ambulance. Patients were continuously monitored during treatment. Non-blinded study

### Comments:

This single report seems to provide strong evidence to support the use of IV Nitro for Pre-hospital Unstable Angina symptoms. IV Nitro is easier controlled and larger amounts have proven to be more effective with little risk to the patient.

### Consider:

*Further study is necessary to determine if IV Nitro for Pre-hospital Unstable Angina Patients would be beneficial. The study is non-blinded and fails to examine clinically relevant outcomes such as morbidity or mortality relative to number of patients and attempts at IV Nitro vs SL Nitro.*

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## **Clinical Bottom Line:**

Further study is necessary to determine if administering IV Nitro vs. SL Nitro, as well as amounts given, would have a positive effect on the patients symptoms and possible outcomes. With Nova Scotia being a predominantly rural area along with long wait times at the hospitals there may be some benefits for higher dosages in different routes of administration.

## **References:**

Dr. Gad Cotter. High-Dose Nitrates in the Immediate Management of Unstable Angina: Optimal Dosage Route of Administration and Therapeutic Goals. American Journal of Emergency Medicine. (May 1998)